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AN EMERGING PROGRAM FOR SLOW LEARNING PUPILS IN THE WARWICK PUBLIC SCHOOLS. VOLUME II. GUIDELINES FOR THE SECONDARY CURRICULUM.

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The results of a survey to determine the number of slow learners in the Warwick, Rhode Island, public schools are presented; guidelines are given for the emerging secondary program (grades 7 to 12). The slow learner is defined; and information is given concerning characteristics, identification, testing, placement, guidance and counseling, and teaching techniques. Program guides are outlined for four subject areas. The social studies program presents units of study for each grade level. Units of study and teaching aids are described for the mathematics program. For English, the guide makes teaching suggestions for reading, writing, speaking, and listening. The science program contains units of study for grades 7 and 8. Recommended texts are cited for each subject area. Seven appendixes provide a school numbering code and survey forms for slow learners. A bibliography cites 53 items. (JZ)

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AN EMERGING PROGRAM FOR SLOW LEARNING PUPILS

Public Schools of
WARWICK, RHODE ISLAND

No. 0601 Vol. II 1964

AN EMERGING PROGRAM
for
SLOW LEARNING PUPILS
in the
WARWICK PUBLIC SCHOOLS
Grades 1-12

Volume II

Published by the Warwick School Department
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Vol. I: Guidelines for the Elementary Curriculum
Vol. II: Guidelines for the Secondary Curriculum

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Dr. Clarence S. Taylor
Superintendent of Schools

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Grateful acknowledgment is made to the persons named below who contributed to the success of a special workshop held at Pilgrim High School from June 24 to July 7, 1964, in order to plan a better program for slow learning pupils and to produce this curriculum guide.

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INTRODUCTION

The instructional problems of slow-learning children first captured the attention of Warwick educators a few years ago when a new promotional policy was being formulated. It was soon apparent to all concerned that the usual standards of achievement could not realistically be expected of these youngsters but that instead they should be placed in an educational program specifically geared to their special needs and capabilities. A growing concern on the part of teachers and administrators for such a program finally resulted in the long-term, total staff effort evidenced by this curriculum guide.

Under the leadership of Mrs. Mary Donnelly, Guidance Department Head at Gorton Junior High School, regular monthly meetings were held throughout the 1963-64 school year in order to prepare for an intensive two-week workshop in the summer of 1964. These monthly sessions attracted a cross-section of staff members from all educational levels and all subject areas and provided a suitably broad basis for planning the summer conference, which had twenty-one full-time participants. One important preliminary was a careful survey of the entire school population to determine how many Warwick pupils were learning at a significantly slow rate. Another preparatory activity was a day-long consultation with Dr. G. Orville Johnson of Syracuse University, a nationally recognized expert on the instruction of slow-learning children. Finally, an inter-library loan was arranged by Miss Edith Dahlgren, Gorton librarian, in order to provide workshop members with a wealth of printed materials from the Providence Public Library.

Because the authors of this curriculum guide felt that classroom teachers would need special insights and more information than is usually necessary to launch a new school program, they have included more material than they originally intended and the document has become rather lengthy. For convenience it is therefore being published in two parts, one dealing with the elementary school curriculum proposed for the slow learner and the other with the secondary school phase of the program.

We should not lose sight of the fact that a complete educational package is required for the slow-learner, a program that involves all of his teachers from grade one to grade twelve. While this curriculum guide can furnish the blue-print for such a program, teachers will need much in-service assistance to carry it out. Future organizational and administrative changes may also prove necessary.

Dr. Edward G. Hunt
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A PROGRAM FOR THE SLOW LEARNER IN WARWICK SCHOOLS

The Problem

Individual differences in human beings are apparent to the most casual observer. Obvious physical differences such as height, weight, color of hair and eyes are readily discerned by even the very young child. More subtle differences such as in personality, temperament and character are noticed upon longer acquaintance.

Differences exist in a human being's ability to learn new concepts. Some people learn new ideas quickly and retain the learnings for a long period of time. Others learn more slowly and may or may not be retentive. Still others learn only superficially and cannot grasp complexities.

These differences in rate, retention and depth of learning present many problems in the instruction of groups of students. More particularly is this a serious situation in a graded school with large numbers of pupils. This is typical of the modern American public school. A student who is unable to meet average grade standards finds himself getting farther and farther behind each year.

Disillusionment with school, persistent frustration, chronic failure, and strong feelings of personal inadequacy are often the lot of such a student even in the early grades. The consequent lack of motivation results in his not getting even the limited amount of learning he might be able to absorb. The end result is that in many cases such a student becomes destined to swell the ranks of the dropouts, the delinquent and the unemployed.[1] Upon reaching such a destination, an individual quite likely becomes a greater cost to the community than most any expense that might have been involved in providing him with appropriate educational experiences in the beginning.

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[1] National Education Association of the United States, Project: School Dropouts, (Washington, D.C.: National Education Association of the United States, April, 1963), p. 6.

To help the slow learning student to derive the most benefit from school, the workshop has been concerned with establishing guide-lines by grade and by subject to aid the teacher in the instruction of these children. The results are to be regarded as suggestions that the imaginative and understanding teacher may use as a jumping-off place for inspired teaching of those students who can be classified as slow learners.

Who is the Slow Learner?

Many definitions of the slow learner are available. After sifting through several versions of a definition, the original committee decided upon a working definition which was also accepted by the workshop group:

Definition:

Slow learners in Warwick Schools will comprise those pupils in all grades who

1. have an intellectual potential as measured by one or more intelligence tests (both individual and group tests) below I.Q. 92.
2. have an achievement level as evidenced by
    a. teacher judgment (marks)
    b. standardized tests in reading comprehension and arithmetic (total score) that indicate work is at least ½ year (approximately 35%ile) below the level of the grade placement expected for the age of the pupil.

Note: The criteria involved in identifying slow learners should be sufficiently flexible so that the various services of Special Education may be explored for possible alternate placement.

Survey of Slow Learners:

Using the previously mentioned definition of "slow learner," the committee conducted a survey of students in grades 1-12 in April, 1964. Schools were asked to list all students in the defined I.Q. range and to give objective standardized test results as well as subjective teacher evaluations for each child. Copies of the survey work sheets used by each grade level are included in the Appendix of this guide.

Results of the survey are contained in the following tables:

SUMMARY OF SURVEY TO DETERMINE NUMBER OF SLOW LEARNERS IN WARWICK SCHOOLS
Total number reported under 92 I.Q. in elementary grades 1 through 6
Table I

chool ode No*	Grade 1		Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Totals		Grand Total	% of Enrollment
	B	G	B	G	B	G	B	G	B	G	B	G	B	G		
12	7	1	5	3	4	1	4	3	2	3	3	1	25	12	37	19.7
8									5	3	4	4	9	7	16	14.9
7	4	10											4	10	14	31.1
31					12	7	6	5	4	8	5	3	27	23	50	9.4
16	2	4	7	4									9	8	17	13.8
2	5	5	3	6	4	8	4	7	4	2	3	6	23	34	57	19.3
13	2	2	4	3									6	5	11	8.3
25	2	1	4	3	6	1	0	2	6	2	0	0	18	9	27	7.9
22	9	3	9	10	6	8	2	3	6	6	3	5	35	35	70	21.5
14	2	4	8	4	5	3	0	0	3	1	2	1	20	13	33	8.4
10	3	1	0	3	1	0	5	4	0	1	2	1	11	10	21	13.6
24	5	2	1	3	5	3	5	2	6	3	3	1	25	14	39	10.
28	10	7	7	3	3	1	4	3	6	2	1	1	31	17	48	9.6
11	6	2	6	3	2	0	0	2	3	1			17	8	25	12.7
23	11	5	10	3	6	10	11	6	7	3	4	2	49	29	78	15.6
21	7	3	6	6	11	2	2	3	7	2	5	6	38	22	60	12.3
1	12	10	7	8	12	4	5	2	3	5	7	4	46	33	79	16.8
4	14	13	16	21	14	9	17	9	7	8	9	11	77	71	148	23.7
32			6	3	7	8	2	2	2	0	6	1	23	14	37	9.6
5	6	1	1	0	2	1	5	2	3	0	2	0	19	4	23	9.8
17	1	3	4	5									5	8	13	11.8
26	6	3	4	0	4	3	4	3	5	2	2	3	25	14	39	10.4
27	8	5	6	1	7	6	7	2	8	4	8	6	44	24	68	13.1
33	4	2	10	7	7	4	3	1					24	14	38	15
29	14	7	8	7	16	8	7	8	6	2	1	3	52	35	87	14.3
19	9	4	3	1	1	2	4	1	3	5	3	2	23	15	38	8.1
otals y grade	149	98	135	107	135	89	97	70	96	63	73	61	685	488	1173	13.2
otals B & G	247		242		224		167		159		134					

ee note bottom of Page 9

~~SUMMARY OF SURVEY TO DETERMINE NUMBER OF SLOW LEARNERS IN WARWICK SCHOOLS~~

Number judged to be slow learners in elementary grades after screening.

Table II

hool de No *	Grade 1		Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Totals		Grand Total	% of Enrollment
	B	G	B	G	B	G	B	G	B	G	B	G	B	G		
12	5	0	0	1	1	0	0	1	0	2	1	2	7	6	13	6.9
8									2	2	3	2	5	4	9	8.4
7	4	9											4	9	13	28.8
31					6	2	3	3	3	6	0	0	12	11	23	4.3
16	2	4	7	3									9	7	16	13
2	2	1	2	0	3	2	2	2	2	1	1	4	12	10	22	7.4
13	1	1	3	1									4	2	6	4.5
25	2	1	3	1	5	1	0	2	2	0	0	0	12	5	17	5
22	6	2	3	6	3	2	2	1	2	4	2	4	18	19	37	11.3
14	1	3	4	3	3	0	0	0	1	0	1	1	10	7	17	4.3
10	3	1	0	3	1	0	4	3	0	0	2	1	10	8	18	11.6
24	5	2	0	2	3	0	3	1	3	2	1	1	15	8	23	5.9
28	9	6	3	2	1	1	0	1	3	2	0	0	16	12	28	5.6
11	6	2	6	3	2	0	0	2	1	0			15	7	22	11.2
23	9	3	9	1	5	7	6	2	5	2	4	2	38	17	55	11
21	7	3	4	4	5	0	0	0	4	2	3	4	23	13	36	7.3
1	10	8	2	6	4	3	4	1	3	2	4	1	27	21	48	10.2
4	12	12	14	10	10	2	10	2	7	3	7	5	60	34	94	15
32			4	1	5	7	1	2	1	0	2	0	13	10	23	6
5	5	1	1	0	2	1	2	1	1	0	1	0	12	3	15	6.4
17	1	3	2	2									3	5	8	7.2
26	6	3	4	0	4	3	1	3	5	2	2	2	22	13	35	9.4
27	7	4	5	1	6	5	5	1	7	4	5	3	35	18	53	10.2
33	3	1	7	6	5	2	1	1					16	10	26	10.2
29	12	5	5	1	13	5	2	2	2	1	1	0	35	14	49	8
19	9	4	3	1	1	0	3	1	1	2	2	0	19	8	27	5.7
otals	127	79	91	58	88	43	49	32	55	37	42	32	452	281	733	8.2
otal * & G	206		149		131		81		92		74					

* See note bottom of Page 9

TABLE III

SUMMARY OF SURVEY TO DETERMINE NUMBER OF SLOW LEARNERS IN WARWICK SCHOOLS

Total number reported under 92 I.Q. in secondary grades 7 through 12

ool * e No.	Grade 7		Grade 8		Grade 9		Grade 10		Grade 11		Grade 12		Totals		Grand Total	% of Enrollmt.
	B	G	B	G	B	G	B	G	B	G	B	G	B	G		
High																
18	38	28	32	33									70	61	131	14.1
20	36	26	44	30									80	56	136	14.5
15	34	8	27	5									61	13	74	9.5
. High																
34					59	37	47	35	39	33	22	17	167	122	289	13.2
30					42	30	26	22	29	20	21	9	118	81	199	9.7
tals by rades	98	62	103	68	101	67	73	57	68	53	43	26	496	333	829	12
tal B & G	160		171		168		130		121		69					

* See note bottom of Page 9

TABLE IV

SUMMARY OF SURVEY TO DETERMINE NUMBER OF SLOW LEARNERS IN WARWICK SCHOOLS

Number judged to be slow learners in secondary grades after screening.

School Code No.*	Grade 7		Grade 8		Grade 9		Grade 10		Grade 11		Grade 12		Totals		Grand Total	% of Enrolmt.
	B	G	B	G	B	G	B	G	B	G	B	G	B	G		
Jr. High																
18	29	20	26	29									55	49	104	11.2
20	19	13	29	15									48	28	76	8.1
15	33	8	22	5									55	13	68	8.7
Sr. Hi																
34					50	24	43	31	36	32	21	12	150	99	249	11.4
30					35	25	26	19	27	15	19	8	107	67	174	8.5
Totals by Grades	81	41	77	49	85	49	69	50	63	47	40	20	415	256	671	9.7
Total B & G	122		126		134		119		110		60					

* See note bottom of Page 9

SUMMARY OF SURVEY RESULTS

1. Number Slow Learners reported in elementary grades 1173, or about 13.2% of entire elementary population.

2. Number Slow Learners reported in Secondary grades 829, or about 12% of entire secondary population.

3. After screening number judged to be Slow Learners in elementary grades 733, or about 8.2% of entire elementary population.

4. After screening number judged to be Slow Learners in secondary grades 671, or about 9.7% of entire secondary population.

5. Number Slow Learners reported from all grades 2002, or about 12.7% of entire school population.

6. After screening number judged to be Slow Learners in all grades 1404, or about 8.9% of entire school population.

7. Number of boys reported in elementary grades 685, or about 58.4% of total reported.

8. Number of girls reported in elementary grades 488, or about 41.6% of total reported.

9. Stated differently, out of every 5 reported in elementary grades 3 were boys.

10. Number of boys reported in secondary grades 496, or about 59.8% of total reported.

11. Number of girls reported in secondary grades 333, or about 40.2% of total reported.

12. Stated differently, out of every 5 reported in secondary grades approximately 3 were boys.

13. Number of boys reported from all grades 1181, or approximately 58.9% of total reported.

14. Number of girls reported from all grades 821, or approximately 41.1% of total reported.

15. Here again, out of every 5 reported approximately 3 were boys.

16. Distribution of all Slow Learners reported, starting with the grades containing the largest number, is as follows:

Grade	1	2	3	8	9	4	7	5	6	10	11	12
Number	247	242	224	171	168	167	160	159	134	130	121	69

SUMMARY OF SURVEY RESULTS

17. Distribution after screening:

Grade	1	2	9	3	8	7	10	11	5	4	6	12
Number	206	149	134	131	126	122	119	110	92	81	74	60

18. There appears to be a correllation between the decreasing progression of the numbers of Slow Learners reported in grades 9 through 12, and the known fact that they constitute a large portion of those who drop out of school beginning at the time they reach maximum compulsory attendance age- usually at the 9th and 10th grades.

19. Grades 1, 2, 3, contain the largest numbers of reported Slow Learners. This could be due to the following:
    1. Increasingly larger groups entering school.
    2. The greater unreliability of the small amount of evidence available for identifying the Slow Learner at the lowest level.

20. At the elementary level the percentage of Slow Learners reported from the total enrollment at each school varies from a low of 7.9% to a high of 23.7% (one school is left out because it reported only the first grade.) The median is 12.9%. A listing in order from highest to lowest percentage appears to reveal an inverse correllation between the percentage of Slow Learners reported and the socio-economic level of the immediate community in which each school is located:

School Code No.*	%
7	31.3%
4	23.7
22	21.5
12	19.7
2	19.3
1	16.8
23	15.6
33	15.0
8	14.9
29	14.3
16	13.8
10	13.6
27	13.1
11	12.7
21	12.3
17	11.8
26	10.4
24	10.0
5	9.8
32	9.6
28	9.6
31	9.4
14	8.4
13	8.3
19	8.1
25	7.9

---

* School Code Numbers are assigned by State Department of Education. Schools to which they refer are listed in Appendix I.

It will be noted that the number of students with I.Q. 92 or under in regular grades in Warwick Schools was approximately 13% of the school population. When the survey sheets were studied to consider other factors of the definition, the number dropped to 9% of the school population.

Dr. Johnson estimates that "among the general school population, 15 to 17 or 18 per cent of the children can be considered slow learners."[2] Since Warwick is a suburban community with a high percentage of native born, third generation American children, the percentage figures for slow learners appear to be lower than the estimated numbers in the general school population.

It is readily seen from the survey that certain schools have a higher concentration of slow learners than the average Warwick school. Where this is a noticeable situation, special recommendations are made under the Class Size and Raising the Aspiration Level sections of the general recommendations in this guide.

This survey represents the actual situation regarding slow learners that existed in April, 1964, with all Warwick Schools reporting. As such it presents factual information that should be of value to the school administration and to the individual schools involved. It indicates clearly the widespread nature of the slow learner problem and the particular areas where the concentration is the heaviest.

Sociological Aspects of the Slow Learner Problem

As can be seen from the survey results, slow learning children do not constitute a minor problem in the school system as a whole. Indeed, in some individual schools, it poses a very serious problem. The needs of these students must be met. Workable solutions to their problems must be sought. Teachers, parents and the community as a whole have too large a stake in the outcomes of an inadequate educational program for these students. Dropouts, delinquency and wasted lives may often be the result.

---

[2] Johnson, G. Orville, Education for the Slow Learners (Englewood Cliffs, N.J.: Prentice Hall, Inc., 1963), p. 9.

"If anyone doubts the need of sincere efforts to educate these slow learners, let him meditate on the fact that twenty out of every hundred pupils chosen at random means at least four million for the country as a whole. Then let him ponder the consequences for the general welfare of permitting that number of future citizens to grow up, illiterate, uncultured, and uninitiated in the American way of life. If anyone doubts the soundness of investing a considerable sum in their education, let him try to forecast the consequences of not making that investment, bearing in mind, of course, diminished capacity to produce as well as to consume, but more important, not overlooking the declining zeal for the democratic way of life that invariably accompanies illiteracy and ignorance."[3]

While slow learning children have been able to function on a low level as part of the overall school picture, much less attention has been paid to their problems by administrators than has been given to the study of more obviously handicapped children. Hollis L. Caswell says in the Introduction to Featherstone's book:

"...the education these slow learning children acquire is of major importance to American democracy.... They will do their share of the work of the world, they will cast their votes, they will participate in the activities of labor unions and farm organizations, they will make homes. What they become, the ideas they develop are vital to our national welfare."[4]

[3] Featherstone, W.B., Teaching the Slow Learner (New York: Bureau of Publications, Teachers College, Columbia University, 1951) pp. vii-viii.

[4] Ibid., p. v

Causes

Causes of slowness in children are due basically to the areas of inherited mental capacity and environmental factors. Willard Abraham suggests eleven different items that specifically have a bearing on slowness of learning:

1. "Socio-economic limitations
2. Cultural and language deprivations or differences
3. Physical factors based on sight, hearing, immature development, malnutrition, or other health conditions.
4. Family problems or tensions, anxieties, quarrels, excessive mobility, lack of acceptance of child
5. School-related factors such as irregular attendance, inefficient teaching, distaste for school, poor study habits, repeated failure and inadequate curriculum
6. Meager or barren educational resources in home and/or community
7. Incongruities among factors of ability, achievement, and aspiration as they relate to each other
8. Accidents, infections, or diseases resulting in physical or emotional problems
9. Inappropriate educational pressures before child is ready
10. Emotional disturbances related to the previous factors
11. The absence of drive, inner urge, or motivation, existent but not traceable to any of the previous factors."[5]

Characteristics

Slow learners exhibit no superficial characteristics that make them instantly recognizable. There are, however, observable differences, chiefly degrees of difference, that can be cited when slow learners are compared with children of average intellectual ability. Abraham lists these differences:

1. "Short attention and interest span
2. Limited imagination and limited creative thinking

---

[5] Abraham, Willard, The Slow Learner (New York: The Center for Applied Research in Education, Inc., 1964), p. 8

3. Slow reaction time

4. Apathy, diffidence, dependence, placidity - but frequent presence of excitability, sensitivity.

5. Academic retardation, especially in reading; achievement age lagging behind chronological age

6. Absence or easy loss of self-confidence

7. Gullibility, instability, shyness, submissiveness

8. Low power of retention and memory

9. Inability to do abstract thinking, to handle symbols, to evaluate results, to foresee consequences of acts.

10. Failure to transfer ideas, to extend beyond local point of view in time or place, to retain interest if results are deferred or intangible

11. Limited powers of self-direction, of adopting to change in situations and people

12. Low levels of initiative, vocabulary, standards of workmanship, persistence, concentration, reasoning defining, discrimating, analyzing

13. Ease of confusion; fears, anxieties

14. Laziness - but perhaps due to ill health or emotional maladjustment rather than as a constitutional factor

15. Action based on impulse; insistence on quick results; inclination toward jumping to conclusions

16. Less well-developed physically - height, weight, proportion, general health, unexplained fatigue"[6]

General Observations

Identification

Early identification of slow learners is important to any program to help them. It is felt by elementary school authorities that a tentative identification can be made as early as February of the first year in school. Slow learners should be identified each year in each school after a study has been made of the following factors:

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[6] Abraham, Willard, The Slow Learner (New York: The Center for Applied Research in Education, Inc., 1964), p. 18.

1. A preliminary screening based on one or more I.Q. test results using 92 as the high level cut-off. Results of an individual I.Q. test such as the Binet or W.I.S.C. should be used as soon as available

2. Results on the latest standardized tests in reading comprehension and arithmetic fundamentals. The following list of tests are now in use:

Grade 1

Metropolitan Reading Readiness Test - percentile score
Pupils under 10%ile on the Readiness test have Individual I.Q. tests which should be checked.
Teacher judgment

Grade 2

Individual I.Q. score for all students is available
Metropolitan Achievement Test scores in reading and math
Teacher judgment

Grades 3-4-5-6

Kuhlman-Anderson score (Test given in grade 3)
Any individual test available for the student
I.T.B.S. reading and math score
Reading level based on teacher judgment
Overall teacher judgment

Grades 7 and 8

Two or more I.Q. tests of recent origin-preferably one individual test
I.T.B.S. reading and arithmetic scores
Teacher and counselor judgment

Grades 9-10-11-12

Two or more I.Q. tests of recent origin-preferably one individual test
Cooperative English Reading score
Teacher and counselor judgment

3. Teacher's marks

4. Subjective evaluations by teachers and guidance counselors

The appendix of this guide contains copies of suggested forms for identifying slow learners. These forms were used in the 1964 survey and are differentiated for each grade level, taking into consideration the objective tests available at that stage of the student's education.

Flexibility

The designation of any student as a "slow learner" should be subject to immediate flexibility. A student who improves markedly should be removed from this category as soon as evidence conclusively indicates that he can function as an average learner. His program should be adjusted as soon as possible. This might be at the end of a marking period or at the end of a semester or year. In the early grades, this is particularly important since some children on gaining more maturity cease to function as slow learners. There should be no hesitancy to include such children in the program at the beginning so that special attention may be given to them to speed their development. Evaluation of all children in the program should be carried on constantly and most particularly, at the end of each school year.

Testing

Students designated as slow learners should take objective tests more frequently than other students. Efforts should be made to administer diagnostic tests before embarking on special programs. Johnson mentions that "a comprehensive testing program provides for periodic intelligence testing and yearly achievement testing.... Other types of tests may occasionally be necessary to provide additional diagnostic material. The primary ones among these are the educational diagnostic tests that are used to determine the degree and kinds of educational problems... Among the most commonly used tests are:

1. Durrell Analysis of Reading Difficulty, World Book Co.
2. Durrell-Sullivan Reading Capacity and Achievement Tests, World Book Co.

3. Ingraham-Clark Diagnostic Reading Tests, California Test Bureau

4. Gates Reading Diagnostic Tests, Revised Edition, Bureau of Publications, Teachers College, Columbia University

5. Gates-Russell Spelling Diagnostic Test, Bureau of Publications, Teachers College, Columbia University

6. Brueckner Diagnostic Arithmetic Tests, Educational Test Bureau, Educational Publishers, Inc.

7. Diagnostic Chart for Fundamental Processes in Arithmetic, Public School Publishing Co.

...In addition most standard achievement tests in the various areas have diagnostic features and can be used for this purpose as well as for measuring the developmental level of the child."[7]

Placement

In secondary grades, placement of identified slow learners is made a part of the homogeneous grouping in use for many years. In grades 7 and 8, students may be grouped as a section for all subjects. Those students who have special strengths in one subject such as Mathematics or Science, may take this subject with another more rapidly progressing group. In non-academic subjects such students would combine with other groups for Physical Education, Music, Art and in some cases, Industrial Arts, Homemaking and Business. In Guidance classes, slow learners get more specific help if they meet as a group rather than as part of a heterogeneous class.

At the senior high level, beginnings have been made in grouping slow learners as an entity in English classes. In the ninth grade, attempts have been made to obtain homogeneous groups in the required subjects, English, Mathematics, Civics and General Science. The effort to get a greater amount of homogeneous grouping in these subjects needs to be intensified. Administration, Guidance and the specific department heads must make plans to schedule slow learners as a group so that more attention can be paid to their needs.

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[7] Johnson, op. cit., p. 78

There seems to be a definite need for elective courses at grades ten, eleven and twelve that present subjects for graduation credit but not college credit. Such specific courses as Practical Biology, Practical Physics, General Shop might prove attractive to the slow learner as an elective within the range of his ability.

In elementary school, placement in a group within a class is the usual organization. Slow learners should be known to the teacher of the class and the work should be modified to fit their needs. The guide lines established by this curriculum publication should give some help to the classroom teacher. Elementary teachers need to make as much use as possible of specialized personnel such as the Reading consultants, Guidance counselors, Social Studies consultant and special Science teachers to help the slow learners. Expectations of achievement need to be adjusted realistically for these students. As soon as feasible, the aid of additional resource personnel should be made available for additional help with slow learners.

The development of the non-graded school offers many possibilities for proper placement of slow learners. As this type of school organization becomes more widespread, many of the placement problems of slow learners in elementary schools may be solved.

Marking

When slow learning students are placed in groups with a realistic accomplishment goal, it soon becomes apparent that an overall marking system must be modified. Students who succeed in the work assigned to them soon become discouraged if the only reward on the report card is a D2. This tends to prevent the success syndrome from developing.

Slow learners should be marked on the quality of the work done on their level. The report card and all permanent records and transcripts should bear the notation that the level on which the student is working is below the expectancy for the years in school. In this way, the student might receive an A or B but it would not be confused with such a letter grade earned on an average or above average level of study.

Promotion

The work expected of slow learners should be realistic in terms of their limited ability. If this is so, the slow learning student should not repeat whole grades. He should go on to the next grade with his peers in age and be placed in a group in that grade that is working at his ability level.

Nomenclature

"Slow learner" is a term that should be used for administrative purposes only. The students should not hear this term as applied to them. It should not be used in reporting to parents. Administrative, guidance and instructional personnel should use the term for purposes of placement and adaptation of curriculum but not to brand any group or individual.

Health Examinations

Students who are identified as slow learners should receive the special consideration of school health authorities. A medical examination each year by the school doctors should give careful attention to administering complete sight and hearing examinations.

Nutrition problems of slow learners need to be studied. Although some teachers mistakenly think that the slow learner may have better physical health than the average child, this is not the case. Slow learners sometimes seem bigger and heavier than other students simply because they are older as a result of several grade repetitions.[8]

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[8] Abraham, op. cit., p. 6.

Guidance and Counseling

At all levels, guidance personnel must give added attention to the slow learner. Efforts should be made to get help for him when necessary from parents, social agencies and school services. Frequent parental contacts should be maintained. Placement of students identified as slow learners but whose problems make them better suited to programs for the mentally retarded, physically handicapped or emotionally disturbed should be undertaken by counselors as soon as the more refined identification is made. Frequent counselling of slow learners through individual interviews is very necessary and should be expanded.[9]

Cooperative Work-Study Programs

In the senior high school, slow learners who are interested in the alternating week work-study plans should be given consideration when jobs are available that such a student can handle with success. Efforts should be made to secure more employment opportunities in this program for this type of student if he is interested in this experience.

Mid-year and Final Examinations

Slow learners on the secondary level should have mid-year and final examinations that are constructed especially for their program. In cases where the student is being considered for a change of group, the examination given to average level students may be taken for purposes of comparison.

Class Size

Because slow learners require more individualized help, the teacher can effectively give them the needed attention only if the groups are small enough to be workable. Reduction of class size for these groups is an integral part of a successful program. This should be worked out in each school on the basis of the number of children in the school judged to be in the slow learner category. Schools with a high percentage of slow learners need the services of resource personnel to a greater extent than other schools. The reduction in the size of these groups should be part of a general reduction in class size for the school system.

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[9] National Education Association of the United States, op. cit., p. 13.

Pilot Classes

Before innovations in curriculum for the slow learners are instituted throughout the school system, pilot classes on each level and in each area should be tried. In-service meetings should be held to acquaint all teachers of the need for help for the slow learning child and to inform teachers of the results of the work done in pilot studies.

The Teacher of the Slow Learner

Who is the successful teacher of slow learning children? Not every good teacher is suited to working with these students. Very careful attention must be paid by administrators to the assignment of teachers to work with slow learners.

Such teachers need to be stable, well balanced people with sound mental health. A teacher must be secure enough to teach slow learners without feeling threatened. A knowledge of subject matter areas, an understanding of teaching techniques, good health, maturity and patience are important essentials of the teacher. Abraham points out that "the teacher should be able to conclude that the assignment of slow learners to his class is not in the realm of professional disciplining or discrimination against him; nor is an unpleasant and inescapable duty, but rather a chance to confront a difficult job with great built in satisfactions."[10]

Teaching Techniques

Specific teaching techniques are recommended in the subject matter areas of this guide. In general, teaching techniques suggested by Abraham are called to the attention of the teacher:

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[10] Abraham, op. cit., p. 73.

1. "Simplify activities because these children cannot see as far ahead as others; shorten in length and narrow in scope.
2. Set up plans that are clear, definite and precise.
3. Make relationships obvious.
4. Use demonstrations generously, making them concrete and tangible rather than verbal and abstract; include illustrations, audio-visual aids, field trips, and direct experiences.
5. Use drill and practice, but not meaningless rote or repetition; quantity without quality is futile.
6. Evaluate frequently and reassure often to help compensate for past frustrations, but give praise only if earned.
7. Develop "pride in outfit," in accomplishment and in appearance.
8. Stress the practical and the immediately meaningful, such as current happenings at home, in school, in the community, and in world affairs.
9. Capitalize on individual abilities, such as those of an athlete, mechanical, social, artistic, or other nature; encourage creative ideas and interests or hobbies.
10. Refrain from undue pressures.
11. Use procedures that encourage student expression, including teacher-pupil planning and group processes in classroom activities.
12. Seek and bring out vocational ambitions that are realistically founded."[11]

Raising the Level of Aspiration

Slow learners need help to raise their sights and to develop their perceptual abilities to the point where they can get more from school because they can bring more to the class. Expansion of the present opportunities for making use of field trips, bringing outside people into the classroom, extended use of visual aids and artifacts all need to be adapted for greater use with slow learners. This is especially true of those schools that the survey shows have a high percentage of slow learners. The Higher Horizons[12] program in New York City Schools should be studied for significant adaptations to the local needs.

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[11] Abraham, op. cit., p. 69.

[12] Landers, Jacob, Higher Horizons Progress Report (New York: Board of Education of the City of New York, January, 1963)

Accomplishment Expectations of Slow Learners

The following charts published in Johnson's book, Education for the Slow Learners are of help in establishing reasonable levels of accomplishment for slow learners:

TABLE V

Chronological Ages of Children Enrolled in the Primary Grades-September 1 and June 30

Grade Level	Ages of Normal Children				Ages of Slow Learners			
	September 1		June 30		September 1		June 30	
	Spread	Average	Spread	Average	Spread	Average	Spread	Average
Kindergarten	4-9 to 5-9	5-3	5-7 to 6-7	6-1	4-9 to 5-9	5-3	5-7 to 6-7	6-1
First	5-9 to 6-9	6-3	6-7 to 7-7	7-1	5-9 to 6-11	6-4	6-7 to 7-9	7-2
Second	6-9 to 7-9	7-3	7-7 to 8-7	8-1	6-11 to 8-1	7-6	7-9 to 8-11	8-4
Third	7-9 to 8-9	8-3	8-7 to 9-7	9-1	8-1 to 9-3	8-8	8-11 to 10-1	9-6

TABLE VI

Approximate Mental Ages and Appropriate Grade-Level Achievements for Slow Learners Enrolled in the Primary Grades-September 1 and June 30.

Grade Level	Mental Age				Grade Achievement			
	September 1		June 30		September 1		June 30	
	Spread	Average	Spread	Average	Spread	Avgrage	Spread	Average
Kindergarten	3-7 to 5-2	4-5	4-2 to 5-11	5-1	- to -	- -	- to -	-
First	4-4 to 6-1	5-3	5-0 to 6-10	5-11	- to -	-	- to 1.7	-
Second	5-2 to 7-0	6-1	5-10 to 7-9	6-10	- to 1.8	-	- to 2.6	1.6
Third	6-1 to 7-11	7-0	6-8 to 8-8	7-8	- to 2.7	1.8	1.6 to 3.4	2.5

Reference: G. Orville Johnson, Education for the Slow Learners, p. 125

TABLE VII

CHRONOLOGICAL AGES OF CHILDREN ENROLLED IN THE INTERMEDIATE GRADES-SEPTEMBER 1 AND JUNE 30

Grade Level	Ages of Normal Children				Ages of Slow Learners			
	September 1		June 30		September 1		June 30	
	Spread	Average	Spread	Average	Spread	Average	Spread	Average
Fourth	8-9 to 9-9	9-3	9-7 to 10-7	10-1	9-3 to 10-5	9-10	10-1 to 11-3	10-8
Fifth	9-9 to 10-9	10-3	10-7 to 11-7	11-1	10-5 to 11-7	11-0	11-3 to 12-5	11-10
Sixth	10-9 to 11-9	11-3	11-7 to 12-7	12-1	11-7 to 12-9	12-2	12-5 to 13-7	13-0

TABLE VIII

Approximate Mental Ages and Appropriate Grade-Level Achievements for Slow Learners Enrolled in the Primary Grades-September 1 and June 30

Grade Level	Mental Age				Grade Achievement			
	September 1		June 30		September 1		June 30	
	Spread	Average	Spread	Average	Spread	Average	Spread	Average
Fourth	6-11 to 8-9	7-10	7-7 to 9-6	8-7	1.6 to 3.5	2.6	2.3 to 4.2	3.3
Fifth	7-10 to 9-8	8-9	8-5 to 10-5	9-5	2.6 to 4.4	3.5	3.2 to 5.2	4.2
Sixth	8-8 to 10-7	9.8	9-4 to 11-4	10-4	3.4 to 5.3	4.4	4.2 to 6.0	5.1

Reference: G. Orville Johnson, Education for the Slow Learners, p. 140

TABLE IX

Chronological Ages of Children Enrolled in the Junior High School-September 1 and June 30

Grade Level	Ages of Normal Children				Ages of Slow Learners			
	September 1		June 30		September 1		June 30	
	Spread	Average	Spread	Average	Spread	Average	Spread	Average
Seventh	11-9 to 12-9	12-3	12-7 to 13-7	13-1	12-9 to 13-11	13-4	13-7 to 14-9	14-2
Eighth	12-9 to 13-9	13-3	13-7 to 14-7	14-1	13-9 to 15-1	14-5	14-7 to 15-11	15-3
Ninth	13-9 to 14-9	14-3	14-7 to 15-7	15-1	14-9 to 16-3	15-6	15-7 to 17-1	16-4

TABLE X

Approximate Mental Ages and Appropriate Grade-Level Achievements for Slow Learners Enrolled in the Junior High School-September 1 and June 30

Grade Level	Mental Age				Grade Achievement			
	September 1		June 30		September 1		June 30	
	Spread	Average	Spread	Average	Spread	Average	Spread	Average
Seventh	9-6 to 11-4	10-5	10-1 to 12-0	11-1	3.5 to 5.3	4.4	4.0 to 6.0	5.0
Eighth	10-1 to 12-1	11-1	10-6 to 12-6	11-6	4.0 to 6.0	5.0	4.5 to 6.5	5.5
Ninth	10-7 to 12-7	11-7	11-0 to 13-0	12-0	4.6 to 6.6	5.6	5.0 to 7.0	6.0

Reference: G. Orville Johnson, Education for the Slow Learners, p. 158

TABLE XI

Chronological Ages of Children Enrolled In The Senior High School

Grade Level	Ages of Normal Children				Ages of Slow Learners			
	September 1		June 30		September 1		June 30	
	Spread	Average	Spread	Average	Spread	Average	Spread	Average
Tenth	14-9 to 15-9	15-3	15-7 to 16-7	16-1	16-3 to 17-3	16-9	17-1 to 18-1	17-7
Eleventh	15-9 to 16-9	16-3	16-7 to 17-7	17-1	17-3 to 18-3	17-9	18-1 tb 19-1	18-7
Twelfth	16-9 to 17-9	17-3	17-7 to 18-7	18-1	18-3 to 19-3	18-9	19-1 to 20-1	19-7

TABLE XII

Approximate Mental Ages and Appropriate Grade Level Achievement for Slow Learners Enrolled in the Senior High School-September 1 and June 30

Grade Level	Mental Age				Grade Achievement			
	September 1		June 30		September 1		June 30	
	Spread	Average	Spread	Average	Spread	Average	Spread	Average
Tenth, Eleventh, Twelfth	11-0 to 13-6	12-3	11-0 to 13-6	12-3	5.0 to 7.5	6.3	5.0 to 7.5	6.3

Reference: G. Orville Johnson, Education for the Slow Learners, p. 171

ENGLISH

General Suggestions

I. Since the teaching of reading is of paramount importance, the teacher of the slow learner should emphasize the improvement of the reading skills that the child has already attained.

II. Writing experiences should be frequent, practical and varied. Short exercises in writing that are meaningful should be emphasized by the teacher.

III. Due to the need for slow learners to listen and speak adequately, the teaching of these skills should be a vital part of the daily program.

THE DEVELOPMENTAL ENGLISH GUIDE

The committee feels that since the teacher will instruct students at different levels of ability in various areas of English expression that no distinct grade levels should be indicated in a guide for teaching the slow learner.

Through a testing program the teacher will locate the levels of abilities of each child and use the guide accordingly.

The following guide is necessarily of a flexible nature and is based on the concept of instructing at a basic level and progressing from year to year to a point of maximum achievement.

The guide contains suggestions that a teacher can follow with the understanding that he should use his own ingenuity to meet the demanding situations that will occur from day to day.

The sub-topics of the guide are arranged according to difficulty.

OUTLINE

I. Writing Goals

  A. Composition

    1. Accuracy in writing complete and grammatically correct sentences

    2. Development of logical paragraph

      a. Topic sentence (first sentence)

      b. Proper closing (clincher)

      c. Development of paragraph by using details

      d. Use of transitions

    3. Varied writing experiences

      a. Letters

      b. Forms: applications, accident reports

      c. Personal experiences

      d. Secretarial reports

      e. Daily journal

      f. Class news report

  B. Vocabulary

    1. Words from context of reading

    2. Synonyms

    3. Specific words to replace general and broad terms

  C. Grammar

    1. Basic sentence patterns

      a. Noun-verb

      b. Noun-verb-object

      c. Modifier-noun-verb-object

      d. Noun-verb-object-prepositional phrase

      e. Variations of these patterns

2. Kinds of nouns

   a. Common

   b. Proper

3. Forms of nouns

   a. Singular

   b. Plural

   c. Possessive

D. Correction of errors in usage

   1. Agreement of subject and verb

      a. In person and number

      b. With a phrase between

      c. With a collective noun as subject

      d. With the expletive There

      e. With neither or either, and correlatives

   2. Correct verb forms

      a. Ed on past tense

      b. Elimination of ain't

      c. Elimination of double negatives

      d. Began and begun

      e. Broke and broken

      f. Came and come

      g. Did and done

      h. Ran and run

      i. Saw and seen

      j. Swam and swum

      k. Went and gone

    3. Pronoun
        a. Correct forms before verb
        b. Correct forms after verb
        c. Correct forms after preposition
    4. Correction of any glaring errors in speech in the class

E. Punctuation

1. Capitals
2. End punctuation
3. Comma
4. Quotation marks
5. Possessives and contractions

F. Spelling

1. Correct spelling on all written work
2. List of words from students' written work
3. Basic spelling program according to reading level

READING

I. Word Study

  A. Word analysis

    1. Recognizing phonetic parts

    2. Recognizing compound words

    3. Dividing words into syllables

    4. Building words: adding s, ed, ing, or, est, and so forth

    5. Recognizing base or root words

    6. Finding prefixes and suffixes

  B. Dictionary and other reference skills

    1. Alphabetizing

    2. Syllabication

    3. Learning accents

    4. Learning vowel sounds

    5. Learning guide words

    6. Meaning

    7. Diacritical marks

    8. Use of index

    9. Table of contents

    10. Use of footnotes

  C. Understanding word meanings

    1. Inferring meanings from context clues

    2. Inferring meanings from word-form clues, prefixes, suffixes, roots, compound words, contractions

    3. Recognizing antonyms, synonyms, and homonyms

    4. Choosing descriptive words

    5. Matching words and definitions

    6. Studying words with more than one meaning.

II. Critical Thinking

- A. Comparing and contrasting ideas
- B. Drawing conclusions
- C. Seeing relationships
    - 1. Likenesses and differences
    - 2. Cause and effect
    - 3. Implied relationship
- D. Experiencing sensory images of sound, taste, touch, and motion
- E. Evaluating the content
- F. Making inferences
    - 1. From specific statements and ideas
    - 2. From facts presented and known information
- G. Identification of propaganda
    - 1. Connotation and denotation
    - 2. Slanted words
    - 3. Omitted facts

III. Organizing Ideas

- A. Classifying information
- B. Arranging related items in sequence
    - 1. Events in chronological order
    - 2. Ideas in order of importance
- C. Summarizing and making judgments
    - 1. Selecting sentence which summarizes
    - 2. Interpreting and using diagrams and maps
    - 3. Citing passages to verify an opinion or prove a point
    - 4. Writing summary sentences for paragraph, sections, and articles
    - 5. Simple outlining in grades 10, 11, and 12

ORAL EXPRESSIONS

I. Skills

    A. Ability to speak audibly and clearly

    B. Ability to communicate with ease

II. Experience

    A. Personal experiences

    B. Readings from textbooks

    C. Directions

    D. Reports on materials from source books

    E. Dramatization

    F. Tape recordings

    G. Panel Discussions

    H. Sales Talks

LISTENING

I. Skills

    A. Attentive, sympathetic listening

    B. Ability to ignore distractions

    C. Ability to follow directions

    D. Ability to avoid mental detours

    E. Ability to organize and summarize information

II. Experiences

    A. Listening to classmates' ideas

    B. Listening to explanations and directions

    C. Listening and appreciating plays and poetry

    D. Listening to recordings

    E. Enjoying choral speaking

    F. Distinguishing fact from opinion

TEXTS

There should be available in every classroom multiple texts at "high interest-low reading level" materials, as well as books for pleasure and leisure reading.

The books listed below are suggested for the grades in which the titles appear. However, since slow learners usually do not make a year's progress in one year, the teacher may use books from the previous grades.

SUGGESTED TEXTS

Grade 7

Breaking the Sound Barrier, Macmillan Co., New York.

Practice Exercises from The Developmental Reading Handbook
Public Schools of Warwick, Rhode Island (1963)

Locating the Answer, Book D, Barnell Loft, Ltd., 111 South Centre Ave., Rockville Centre, New York.

Modern Reading , Book 1, Charles E. Merrill Books, Columbus 16, Ohio

Skill Builders, Levels 3, 4, 5; Reader's Digest, Pleasantville, New York

Reading for Meaning, Levels 4 and 5, Builer and Coleman, Charles E. Merrill Books, Columbus 16, Ohio

Landmark Books, Charles E. Merrill Books, Columbus 16, Ohio

American Adventure Series, Row Peterson, New York.

Morgan Bay Mystery Series, Harr Wagner

Wings to Adventure, Book 6, Ginn Publishers, New York

Everyreaders Series (Adaptations), Webster Publishing Co. , St. Louis.
Wild Animals I Have Known, Ernest T. Seton

Grade 8

Breaking the Sound Barrier

Practice Exercises from the Developmental Reading Handbook
Public Schools of Warwick, R. I. (1961)

Locating the Answer, Book D, Barnell Loft, Ltd., 111 So. Centre Ave., Rockville Centre, New York

Reading for Meaning, Levels 4 and 5, Guiler and Coleman, J.B. Lippincott Co., E. Washington Square, Philadelphia, Pa.

Pat, the Pilot, Level 6, Charles E. Merrill Books, Columbus 16, Ohio

SkillBuilders, Books 5 and 6, Reader's Digest, Pleasantville, New York

Standard Test Lessons in Reading, Book B, McCall-Crabbs University Press, Columbia University, N.Y.

Everyreaders Series (Adaptations), Webster Publishing Co., St. Louis
Cases of Sherlock Holmes, Sir Arthur Conan Doyle

New Avenues in Reading, Level 4, Leavell and Davis, The Steck Company, Austin, Texas (1953)

Grade 9

Breaking the Sound Barrier

Advanced Skills in Reading, Bk. I, Joseph Gainsburg, Macmillan Co., 60 Fifth Ave., New York. 10011

Be a Better Reader, Books I and II, Nila Banton Smith, Scott Foresman and Co., Fair Lawn, New Jersey

Locating the Answer, Books E and F, Barnell Loft, Ltd., 111 So. Centre Ave., Rockville Centre, New York.

Reading for Meaning, Book 8 and 9. Guiler and Coleman, J.B. Lippincott Co. E., Washington Square, Philadelphia, Pa.

Standard Test Lessons in Reading, Book C. McCall and Crabbs Columbia University Press, New York

Modern Reading, Book 3, Johnson, Charles E. Merrill Books, Columbus 16, Ohio

High School Reading, Book 1, American Book Co.

Signal Books Series, Doubleday and Co., Garden City, New York
North Pole. Tony Simon
The Jungle Secret, Ingram See and Others

Short Story Parade, Holman, Harcourt, Brace, and World, New York 17, N.Y.

Teen-Age Tales

Top Flight, (Book 1), Humphreville and Fitzgerald, Scott, Foresman and Co., 1900 Pollitt Dr., Fair Lawn, N.J.

Vanguard, Pooley, Lowers, Magdanz, Niles, Scott Foresman and Co., 1900 Pollitt Dr., Fair Lawn, New Jersey

Grade 10

Advanced Skills in Reading, Book 1 or 2 Gainsburg, Macmillan Co., 60 Fifth Ave., New York

Be a Better Reader, Books 1 and 2, Nila Banton Smith, Prentice-Hall, Inc., Englewood Cliffs, New Jersey

Locating the Answer, Books E and F., Barnell Loft, Ltd., 111 So. Centre Ave., Rockville Centre, New York

Reading for Meaning, Book 9, Guiler and Coleman, Lippincott Co., E. Washington Square, Philadelphia, Pa.

Standard Tests in Reading, Book D, McCall-Crabbs, Columbia University Press, New York

Grade 10 (cont'd)

Reader's Digest, Pleasantville N.Y.

New Adventures in Reading, Book 6, Ullin Leavell and Betty Via, The Steck Company, Austin Texas

Cheaper by the Dozen, Gilbreth and Carey, Globe Book Co., 175 Fifth Ave., New York 10, N.Y.

Good Earth, Buck, Globe Book Co., 175 Fifth Ave., New York

High School Reading, Caughran, Mountain (Book 2), American Book Co.

Human Comedy, Saroyan, Harcourt, Brace and World, New York 17, N.Y.

On Target, Humphreville and Fitzgerald, Scott Foresman And Co., 1900 Pollitt Drive, Fair Lawn, N.J.

Pearl Lagoon

Story Essays, McClay, Hudson, Holt, Rinehart and Winston, 383 Madison Ave., N.Y.

Grade 11

Advanced Skills in Reading - Book II or III, Gainsburg, Macmillan Co., 60 Fifth Ave., New York, N.Y.

Standard Test Lessons in Reading, Book E, McCall-Crabbs, Bureau of Publications, Teacher's College, Columbia University, N.Y.

Reader's Digest, Pleasantville, New York.

Tale of Two Cities (Adapted), Dickens, Globe Book Co., 175 Fifth Ave., New York 10, N.Y.

Red Badge of Courage, Crane (complete), Globe Book Co., 175 Fifth Ave., New York 10, N.Y.

Bridges of Toki-ri - Michener, Globe Book Co., 175 Fifth Ave., New York, N.Y.

Grade 12

Advanced Skills in Reading - Book II or III, Gainsburg, Macmillan Co., 60 Fifth Ave., N.Y.

Standard Test Lessons in Reading, Bk. E or F, McCall-Crabbs, Bureau of Publications, Teacher's College, Columbia University, N.Y.

Adventures in Modern Literature, Freier, Lazarus, Harcourt, Brace and World, New York 17, N.Y.

Short Stories

SOCIAL STUDIES

GRADES 7-12

INTRODUCTION

This committee believes that the study, understanding, and application of the social studies content and developmental skills can be applied to the slow learners.

We know that in the field of education and in society, in general, the slow learner has been greatly misunderstood. This being so, how much does the slow learner misunderstand society?

Social studies is one of the few subject areas which deals with humanity and society. In the study of the social studies, the slow learner will be prepared to understand his role and importance in our American society and the society of the world.

The following recommended outlines for the courses of study represents a departure from the traditional ideas of covering subject matter per se during a given period of time. Complete flexibility in the development of the social studies program is considered important. The teacher should not be limited to specific subject matter because of the stifling effect it has on student enthusiasm and pupil reaction to something new.

SOCIAL STUDIES PROGRAM

JUNIOR HIGH SCHOOL LEVEL

Grades 7 & 8

The seventh and eighth grade social studies program for slow learning pupils is designed to stress the various responsibilities in the home, school, church, community, and to promote a general understanding of national, state and local governments. This would lead to a general study of American History. It is believed that the education of the slow learners at the junior high school level should stress their responsibilities as American citizens.

In order to implement a suggested program of this nature the traditional yearly subject matter limits should be abolished and replaced by a two year extremely flexible subject area guidelines. Then the pressures felt to cover certain materials would be abolished and the practice of establishing more meaningful purposes of social studies could be emphasized.

The organizational structure of this program is developed to correlate reading, writing, and communication skills with the content material.

It is considered that an adequate social studies program for slow learners must include frequent trips to various areas of historical or civic significance within the state. These trips are planned to relate specifically with the social studies material so that the subject matter will be more meaningful and realistic to the individuals enrolled within the program. As a prelude to traveling to some particular area the group should be guided in some form of research, reading, and discussion for an understanding of the purpose and significance of the area to be visited.

Planned class discussions may be incorporated into the program. However, these discussions should not become too extensive or non-meaningful to the topic under discussion. The types of discussion methods may vary. Even the basic question and answer method of discussion may be beneficial to the learning situation in many instances.

With reference to the organizational structure of the class, the culminating activity for each day's lesson should include approximately ten minutes for review of the major ideas of learning brought forth from the lesson. With this technique slow learners can readily see what has been accomplished within each lesson.

Techniques of Procedures

I. The Correlation of Reading Skills and the Social Studies Program

  A. Vocabulary development

    1. Explanation of words and phrases peculiar to each section or unit that must be explained for adequate understanding of the lesson.

    2. Frequent reviews, activities, and testing of these words to ensure adequate learning processes.

    3. Teach word analysis skills and phonetic elements in correlation with words chosen for vocabulary development.

  B. Comprehension skills

    1. Silent reading for a purpose.

      a. Reading to find out particular information.

      b. Reading to find the main idea of a paragraph or section.

      c. Directed reading activities whereby questions are posed from the prescribed reading for the day and must be answered by the class usually through written situations.

      d. Selecting details from paragraphs or sections.

      e. Skimming

      f. Drawing conclusions

      g. Cause-and-effect relationships

      h. Distinguishing between fact and opinion

    2. Following Directions

II. Experiences in Work-Study Skills

  A. To improve the pupil's ability to read and interpret graphs, pictures, and cartoons.

  B. To present simple activities which involve sequence of events.

  C. To make simple outlines and summaries of what has been read.

    1. To outline independently simple structured paragraphs.

    2. To direct outlining of more difficult paragraph structure.

D. To improve the pupil's ability to read and use various types of maps.

    1. Symbols

    2. Legend

    3. Scale

    4. Grid lines - longitude, latitude; parallels, meridians

    5. Color schemes which illustrate certain physical or political characteristics.

    6. Shadowing effects, etc. illustrating various concepts.

    7. Use of the globe

E. To develop the use of the parts of a text

    1. Table of contents

    2. Index

    3. Appendix

    4. Glossary

    5. Use of other parts peculiar to the text

F. To provide practical application so as to visualize what has been read through this medium of spot-drawing

    1. Draw maps

    2. Time lines

    3. Other pictoral illustrations

H. To provide additional reading materials for enrichment purposes

III. Development of geographical influences upon the United States and Rhode Island

A. Geographical concepts of the United States

    1. Mountains

    2. Oceans

    3. Rivers

    4. Seas and seaways
    5. Bays
    6. Gulfs
    7. Woodlands, forests
    8. Plains
    9. Deserts
    10. Effects of topography upon livelihood
    11. Geographic location of the U.S. on the earth

  B. Geographic concepts of the state of Rhode Island

    1. Lack of mountains
    2. Bordering ocean
    3. Major rivers
    4. Narragansett Bay
    5. Rhode Island Sound
    6. Islands
    7. Location within the United States
    8. Location of R.I. and the New England area in relation to nations in the world
        a. Climatic differences
        b. Other geographic factors
    9. Effects of geography on livelihood

IV. Historic and Civic Influences

  A. Historical development of the United States

  B. Study of national government

  C. Study of local and state governments

  D. Importance of good citizenship

  E. Brief historical development of the state of Rhode Island and Providence Plantation

V. Plan field trips of significance

   A. To correlate as much as possible with historical facilities

      1. Warwick City Hall
      2. State House
      3. Courts
      4. Slater Mill
      5. Gilbert Stuart Birthplace
      6. Industries
      7. Roger Williams Park Museum
      8. Betsy Ross House
      9. Other museums

   B. To correlate as much as possible with geographical facilities

      1. State parks
      2. Harbors
      3. Fisheries
      4. State fishing pier

VI. Make Provisions Involving Current Events

   A. Current events relating to lessons

   B. Current events relating to experiences

RECOMMENDED TEXTS

EXPLORING AMERICAN HISTORY, Schwartz and O'Connor - Globe

STUDY LESSONS IN OUR NATION'S HISTORY, Abramowitz, The Follett Basic Learnings Program

STUDY LESSONS IN DOCUMENTS OF FREEDOM, Abramowitz, The Follett Basic Learnings Program

DEMOCRACY IN AMERICA, Muthard, Hastings, Gosnell, Van Nostrand Co.

Grades 7 & 8

UNITS OF STUDY

Unit I - Building and Maintaining Democracy

- A. The Home
- B. Importance of the Home
- C. Dangers to the Home
- D. Building for Democracy in the Home

Unit II - The Schools

- A. Why We Have Schools
- B. The Development of Education
- C. The Control and Support of Our Schools
- D. Good Citizens in the School

Unit III - The Church

- A. Religion and Life
- B. The Work of the Church
- C. Religion and Democracy

Unit IV - The Community

- A. Living in Groups
- B. Definition of a Community
- C. The Rural Community
- D. The Urban Community
- E. Democracy in the Community

ORIGIN OF OUR COUNTRY

Unit I - Exploring Our World

- A. Riches of the East
- B. Columbus and the New World
- C. The Search for Riches

- D. The Thirst for Gold
- E. The Spanish in Our South and Southwest
- F. Life in the Spanish Colonies
- G. French Exploration
- H. The English and the New World

Unit II - Colonies in New World

- A. New England
- B. Middle Colonies
- C. Southern Colonies

Unit III - Life in the New World

- A. Life in New England
- B. Life in the Middle Colonies
- C. Life in the Southern Colonies
- D. Life in the Wilderness

Unit IV - Seeds of Freedom

- A. Freedom in the English Colonies
- B. French and Indian War
- C. English Colonial Government
- D. Colonies Resistance to England's Control
- E. War Between Colonies and England
- F. Birth of a Nation

Unit V - Government of Our Nation

- A. Problems of the New Nation
- B. The Constitution - Law of the Nation

- C. Federal Government
- D. Branches of Our Government and Their Powers

Unit VI - Growth of Our Nation in Size and Strength

- A. Settling Northwest Territory
- B. War of 1812
- C. Increase of Government's Strength at Home and Abroad
- D. Development of Roads and Canals
- E. Influence of the West
- F. Addition of Oregon to the United States
- G. Texas, a Republic
- H. War with Mexico
- I. California Statehood

Unit VII - The Civil War

- A. Importance of Cotton
- B. Spread of Slavery
- C. Growth of the Factory System
- D. Problem of the Tariff
- E. Problem of Slavery
- F. Election of Lincoln
- G. Civil War
- H. End of Civil War
- I. Restoring the Southern States to the Union
- J. The New South

Unit VIII - Industrial Growth of the United States

- A. Changes in the American Way of Life
- B. Improvements in Democracy
- C. Immigration

D. Growth of Cities

E. Development of Unions

F. Farm Problems

G. Attention to Natural Resources

Unit IX - The United States as a World Leader

A. Interest in World Affairs

B. World War I

C. Dictators (Pre-World War II)

D. World War II

E. The United Nations

F. The Cold War

G. Communism in Asia

NINTH GRADE WORLD HISTORY

It is the feeling of this committee, since the 7th and 8th grade guide stresses citizenship and United States History, that a program which would build upon such a foundation should include a course in World History. The purpose for the inclusion of such a course is to dispel the traditional tenet that the slow learner is incapable of grasping subject matter content. Such a proposition has been proven false.

The General Aim of the course is to show the slow learner how man's past experiences have contributed to our present day society. Through a study of past civilizations in many areas of the world, the slow learner can gain a better understanding of today's problems and why these problems exist.

The same skills outlined for grades 7 and 8 should be continued in grade 9 and developed as an integral part of the program.

WORLD HISTORY GUIDE

Unit I - The Ancient World and Middle Ages

- A. The Early World
- B. Early Man
- C. The Fertile Crescent
- D. Life in Ancient Egypt
- E. Civilizations of India and China
- F. People of the Mediterranean
- G. Life in Ancient Greece
- H. Athens and Sparta
- I. Alexander the Great
- J. The Rise of Rome
- K. Life in Rome
- L. The Christians in Rome
- M. The Fall of Rome
- N. Europe in the Middle Ages
- O. Nobles and Serfs
- P. Knights and Castles
- Q. Churches and Monasteries
- R. Pope Versus Kings

Unit II - From the Middle Ages to Modern Times

- A. The Crusades
- B. The Growth of Trade
- C. The Rise of Universities
- D. The Renaissance
- E. Results of the Renaissance

- F. The Invention of Printing
- G. The Beginning of Modern Times
- H. The Age of Discovery
- I. Looking for a Path to India
- J. Portugal finds a Way to India
- K. Finding a New World
- L. The Growth of Science
- M. New Ideas in Religion
- N. New Ways of Making a Living
- O. Thinking and Acting Like Modern People

Unit III - The Rise of Democracy

- A. Democracy in Ancient Greece
- B. Serf and Noble in Feudal Times
- C. Democracy and the Renaissance
- D. The Meaning of Absolutism
- E. William the Conqueror and Absolutism
- F. King Versus Noble
- G. Signing of the Magna Carta
- H. The Rights of Englishmen
- I. The Rise of Parliament
- J. The Growth of Parliament
- K. King Versus Parliament
- L. The Ideals of Democracy

Unit IV - The Industrial Revolution

- A. Business in Ancient Greece
- B. Business in Ancient Rome
- C. Business in the Middle Ages

D. The Rise of Trade

E. Trade and Money

F. Trade and Transportation

G. Trade and Government

H. The Guilds

I. The New Middle Class

J. The Growth of Business

K. The Factory System

L. Steam Engines and the Industrial Revolution

M. New Inventions

N. New Farming Methods

O. Problems of the Industrial Revolution

Unit V - The French Revolution

A. The Many Problems of France

B. New Ideas in France

C. The American Revolution and France

D. Failure of Reform in France

E. The French Estates - General

F. The Overthrow of the King

G. The Reign of Terror

H. Reforms of the Revolution

I. The Reign of Napoleon

J. Napoleon Versus England

K. Napoleon in Russia

L. The Defeat of Napoleon

M. The Congress of Vienna

N. Results of the French Revolution

O. Results of the Congress of Vienna

Unit VI - The Expansion of Democracy

A. Reform in England

B. France Again a Republic

C. The Rise of Unionism

D. Factory Legislation

E. The Rights of Women

F. Education and Humanitarianism

G. The Second Industrial Revolution

H. New Inventions of the 19th Century

I. Transportation and Communication in the 19th Century

J. Agriculture and the Second Industrial Revolution

K. The Rise of Big Business

Unit VII - Nationalism and Imperialism

A. The Meaning of Nationalism

B. Europe in 1815

C. Asia in 1815

D. South America in 1815

E. The French Revolution and Nationalism

F. Democracy and Nationalism

G. Germany in 1815.

H. Efforts to Unite Germany

I. Loss of Democracy in Germany 1848

J. PrussianLeadership in Germany

K. Bismark and Germany

L. Results of German Nationalism

M. Italy after 1815

N. United Italy

O. China in the 1800's

P. Japan in the 1800's

Q. The Liberation of South America

R. The Meaning of Imperialism

S. France and Imperialism

T. Imperialism in China

U. The Effect of Imperialism on Nationalism

V. Imperialism and War

Unit VIII - From World War I to World War II

A. Causes of World War I

B. Results of World War I

C. Revolution in Russia

D. Results of the Russian Revolution

E. Europe after World War I

F. Fascism in Italy

G. The Rise of Nazism in Germany

H. The World Depression

I. The Chinese Republic after 1920

J. Japan Against China

K. Nazi Germany Expansion

K. World War II

L. Germany Against England and France

M. Germany Versus Russia

N. Pearl Harbor

O. The United States in World War II

P. The Victory of the Allied Nations

Unit IX - The World Since 1945

A. The General Results of World War II
B. Italy and Germany After the War
C. Russia After the War
D. The United States after the War
E. Europe and the Cold War
F. China After the War
G. Japan After the War
H. India After the War
I. The United Nations
J. The Korean Conflict
K. The Problem of China
L. The Cold War in Southeast Asia
M. The Middle East and the Cold War
N. New Nations of Africa
O. Neutralism and the Cold War
P. The Cold War in the Americas
Q. The Problem of Atomic Control
R. The Race for Space
S. Outlook for Tomorrow

RECOMMENDED TEXT

WORLD HISTORY, Abramowitz, The Follett Basic Learning Program

GRADE TEN

AMERICAN HISTORY

INTRODUCTION

Since the prime objective of teaching slow learners at the high school level is centered around good citizenship this committee feels that the 10th grade course of study of American History should depart from the present curriculum guide. This course should begin at the Exploration Period and continue through to America's present day problems. Emphasis should be placed on the individual's role and importance in a democracy. There should be stress placed on the continuation of the reading and social studies skills. The reading skills approach in the presentation of the social studies material enables these students to progress slowly in the mastery of organization, comprehension, and general subject matter.

The committee believes that the American History course for slow learners should be taught in the 10th grade instead of the 11th grade. The obvious reason being that the slow learner's drop out rate is very high at this level.

Grade 10

AMERICAN HISTORY

Unit I

A. Europe in the 1400's

B. Discoveries in the New World

C. Spain and France in the New World

D. English Settlements in the New World

E. The English Colonies in the New World

F. The French and Indian War

G. Life in Colonial America

H. Disputes Between England and Colonial America

I. Mercantilism and Colonial Disputes: The Grenville Program

J. The Path to Rebellion: The Townshend Program

K. Leaders of Colonial Protest

L. From Boston Massacre to Lexington and Concord

M. The Ideas of the American Revolution

N. The American Revolution

O. Results of the American Revolution

P. Problems of a New Nation : 1783-1789

Q. The Constitutional Convention

Unit II

A. The Ideas Behind the Constitution

B. An Analysis of the Constitution

C. The Legislative Branch

D. Powers Denied to the Federal and State Governments

E. How Congress is Chosen

F. How Congress Operates

G. How the President is Chosen

- H. The Powers of the President
- I. The Federal Judiciary
- J. The Separation of Power
- K. The State Governments and Their Powers
- L. Amendments to the Constitution
- M. The Living Constitution

Unit III

- A. President Washington and the New Government
- B. Federalists Versus Anti-Federalists
- C. Foreign Affairs and American Politics
- D. John Adams as President: The Federalists in Power
- E. The Alien and Sedition Acts
- F. Jefferson as President: The "Revolution of 1800"
- G. Jefferson and the Louisiana Purchase
- H. The War of 1812
- I. The Rise of Nationalism
- J. The Supreme Court and Nationalism
- K. The Expanding Frontier
- L. American Foreign Policy: 1815 - 1823
- M. The Meaning of Sectionalism
- N. Sectionalism and the Missouri Compromise
- O. The Tariff Issue
- P. Jackson and Jacksonian Democracy
- Q. Jackson and the Bank Dispute
- R. Jackson and the Tariff Issue
- S. American Politics: Whigs Versus Democrats

Unit IV - Change and Crisis in American Life (1800-1861)

- A. Changes in American Economic Life: 1800-1850
- B. Social changes in American Life
- C. Reform Movements: 1800-1850
- D. American Literature: 1800-1850
- E. American Culture: 1800-1850
- F. The Problem of Slavery
- G. Northern and Southern Views on Slavery
- H. Efforts to Solve the Slavery Problem
- I. Texas and the Mexican War
- J. The Compromise of 1850
- K. The Kansas-Nebraska Crisis
- L. Slavery as a National Issue
- M. The Dred Scott Decision
- N. The Formation of the Republican Party
- O. The Election of 1860
- P. The South Moves to Secede

Unit V - The Civil War and Reconstruction

- A Causes of the Civil War
- B. Comparison of North and South
- C. Military Aspects of the War
- D. Foreign Policy During the War
- E. American Policy During the War
- F. Political Results of the War
- G. Economic Results of the War
- H. Social Results of the War
- I. Plans for Reconstruction: Congress Versus the President
- J. Radical Reconstruction and President Johnson

- K. The Changing Republican Party
- L. The Problem of the Freedmen
- M. Reconstruction of the South: 1865-1876
- N. The Results of Reconstruction

Unit VI - Changing America Since 1865

- A. The Industrial Revolution in the North
- B. The New South
- C. The Influence of the West
- D. The Economic Assets of the United States
- E. The Issue of Government Regulation
- F. Government Regulation of Business Since 1865
- G. The Problem of Labor
- H. Early Unions in America
- I. The American Federation of Labor
- J. Labor Unionism Since 1933
- K. Government and Labor
- L. The Labor Problem Today
- M. Farm problems After 1865
- N. The Agrarian Protest
- O. Populism and the Election of 1896
- P. The Growing Farm Problem 1896-1920
- Q. The Farm Problem in the 1920's and 1930's
- R. Government and Agriculture under the New Deal
- S. Current Farm Problems

nit VII - American Politics: 1865-1960

- A. Political Administrations: 1864-1900
- B. The Grant Administration: 1869-1877

- C. The Election of 1876
- D. Presidents and Issues: Garfield and Arthur
- E. Presidents and Issues: Grover Cleveland
- F. The Election of 1896
- G. Presidents and Issues: McKinley
- H. Reform and Movements of the 1890's
- I. Theodore Roosevelt and the Progressive Era
- J. Program and achievements of Theodore Roosevelt
- K. Progressivism and the Republicans: 1908-1912
- L. The Election of 1912
- M. Woodrow Wilson and the New Freedom
- N. President Harding and the Return to Normalcy
- O. From Coolidge Prosperity to Depression
- P. President Hoover and the Depression
- Q. Franklin D. Roosevelt and the New Deal
- R. Reforms of the New Deal
- S. Accomplishments of the New Deal
- T. President Truman and the Fair Deal
- U. Reforms of the Truman Administration
- V. President Eisenhower and the Return of the Republicans
- W. The Eisenhower Program
- X. President Kennedy and the New Frontier

Unit VIII - American Foreign Policy

- A. American Foreign Policy: 1789 - 1803
- B. American Foreign Policy: 1803 - 1870
- C. Imperialism and the Spanish-American War
- D. Problems of Colonial Possession

E. United States Policy in the Caribbean

F. The United States in Latin America

G. United States Policy in the Far East: to 1945

H. The United States and Europe: 1914-1939

I. United States Neutrality and the Rise of Dictatorships

J. The United States in World War II

K. Results of World War II

L. The Formation of the United Nations

M. How the United Nations Works

N. The Cold War and American Policy in Europe

O. The Cold War and American Policy in Asia

P. The Cold War and American Policy in the Middle East

Q. The Cold War and American Policy in Africa

R. The Cold War and American Policy in Latin America

Unit IX - Problems of American Democracy

A. Democracy and Welfare

B. The Problem of Immigration

C. The Conservation of Natural Resources

D. Problems of Housing and Health

E. The Problem of Education in American Life

F. The Expension of American Culture

G. American Race Relations

H. Atomic Control, Disarmament, and World Peace

I. The Problem of Atomic Energy

J. The United States in the Space Race

K. The United States and Aid to Underdeveloped Nations

L. The United States and World Economic Cooperation

M. The United States and the Future

GRADE ELEVEN

FUNDAMENTAL ECONOMICS

According to available statistics many slow learning children in grade 11 are approaching their terminal school experiences. The high school educational program should include some fundamental economic principles which may relate directly to the situations that arise upon assuming his place in the community. With this assumption in mind the following guide for a course in Fundamental Economics is recommended.

FUNDAMENTAL ECONOMICS

- I. The Importance of Economics to the American Family
    - A. The family as a consumer
        - 1. Importance of consumption
        - 2. Planned buying
        - 3. Impulse buying
        - 4. Intelligent buying
    - B. Maintaining family income
        - 1. Saving, investing, borrowing
        - 2. The distribution and protection of income
- II. Labor's Influence on the American Economy
    - A. The American worker
        - 1. The American worker - personal close-up
        - 2. Job trends in the labor force
        - 3. Wages on the labor market
    - B. Organizations of American workers
        - 1. The aims and practices of labor unions
        - 2. The organization of labor unions
        - 3. The legal position of labor unions
    - C. Bargaining between labor and management
        - 1. The aims of labor and management
        - 2. New attitudes and issues in bargaining
        - 3. The stages beyond bargaining
- III. Governmental Influence in Economics
    - A. How our governments spend their income
        - 1. Government spending
            - a. Local government
            - b. State governments

- c. Federal government
- 2. Controlling government expenditures
- B. How our governments get their income
  - 1. The principles and effects of taxation
  - 2. Taxes and other forms of government income
  - 3. Government borrowing and debt

IV. Money and Banking

- A. Money and banking system
  - 1. The uses and forms of money
  - 2. Commercial banks and checkbook money
  - 3. The operation of our banking system
- B. Regulation of money and banking
  - 1. Inflation, deflation, and money value
  - 2. Maintaining the value of money

V. Special Challenges and Problems in Economics

- A. The business cycle
  - 1. The business cycle and unemployment
  - 2. Efforts to resist depressions
- B. Trading with other nations
  - 1. The operations of international trade
  - 2. Problems of international trade
- C. Using and conserving our resources
  - 1. Production and survival
    - a. Increase of population
    - b. Danger of exhausting our natural resources
    - c. Abundance through technology
  - 2. The need for conservation and new ideas

D. The problems of the American farmer

    1. Farm problems and how they developed
    2. Efforts to solve the surplus problem

E. War and economics

    1. The causes and effects of war
    2. The role of government in war time

F. Comparing economic systems

    1. Economic systems today
    2. The economy of the U.S.S.R.
    3. The future of our economy

Recommended Text

Our American Economy, Lindholm and Driscoll, Harcourt, Brace

GRADE 12

An elective program as now practiced by the high schools would best serve the needs of the slow learner during his twelfth grade experiences. No recommendations other than a social studies elective program is considered necessary at this time.

The following subjects are offered and may be chosen.

1. Comparative Governments
2. Contemporary Affairs
3. Economic Geography
4. English History
5. Problems of American Democracy

A RECOMMENDED PROGRAM IN MATHEMATICS FOR THE SLOW LEARNER IN THE SECONDARY SCHOOLS IN WARWICK

This guide is designed according to the theory that mathematics should be made alive, meaningful, and stimulating. The purpose of the program is to foster the retention and further development of basic skills; to provide new mathematical experiences which are pertinent to the interests of the chronological ages of students who will take the course; to develop an appreciation and familiarity in using techniques of modern mathematics; and to enable the student to meet and solve consumer, producer and other real life problems in the classroom. Flexibility in the use of this program enables the teacher to eliminate, supplement or accelerate the various units as class potential allows.

The following general objectives are considered necessary for the successful implementation of this program:

1. To develop the basic fundamentals in mathematics necessary to function satisfactorily in real life situations.
2. To provide understandings, insofar as possible, in the techniques, vocabulary and symbolism used in modern mathematics
3. To recognize individual pupil need for satisfaction and reward for mathematical accomplishments

SPECIFIC OBJECTIVES OF BASIC MATHEMATICS

1. To develop an understanding of the decimal system of notation

2. To develop a sufficient understanding and a practical knowledge of the basic addition, subtraction, multiplication, and division facts

3. To develop a clear connection between this information and its use in life situations

4. To develop an attitude of good workmanship, accuracy and adequate speed through an understanding of mathematical skills and concepts

5. To develop the ability to estimate an answer with reasonable accuracy

6. To develop the ability to use appropriate mathematical equipment

Before introducing each unit some form of diagnostic testing should be administered to discover subject areas in need of strengthening or reteaching and achievement level of each student.

Unit I - Number Systems

- A. An historic overview of ancient number systems
    - 1. Egyptian
    - 2. Babylonian
    - 3. Roman
- B. Our decimal system of notation
    - 1. Expanded notation and place value
    - 2. Four fundamental operations using whole numbers

Unit II - Fractions

- A. Developing the fraction concept
- B. Addition of fractions
    - 1. With like denominators
    - 2. With unlike denominators
- C. Subtraction of fractions
    - 1. With no borrowing
    - 2. With borrowing
- D. Multiplication of fractions
- E. Division of fractions

Unit III - Decimals

- A. Relationships between fractions, decimals, and money
- B. Place value in decimals
- C. Addition and subtraction

D. Multiplication and division of decimals
    1. Multiplying by 10, 100, 1000
    2. Dividing by 10, 100, 1000

Unit IV - Percentage

A. Meaning of per cent

B. Fractional equivalents

C. Finding a per cent of a number (Grade 7)

D. Finding what per cent one number is of another (Grade 8)

E. Finding the base or whole when both rate and part are given (Grade 9)

F. Discount and rate of discount

G. Commission

H. Per cent of increase or decrease

I. More than 100% and less than 1%

J. Using formulas with per cents

Unit V - Practical Applications of Mathematics

A. General budgeting
    1. Knowledge of sources of income and expenses
    2. Essential expenses
        a. Shelter
        b. Food
        c. Clothing
        d. Health
        e. Transportation
    3. Non-essentials
        a. Recreation
        b. Miscellaneous - state and federal taxes, licenses, social security

        4. Ways of buying
            a. Cash
            b. Installment
            c. Loans
        5. Bank and Checking Accounts
            a. Opening an account
            b. Deposits and withdrawals
            c. Finding interest
            d. Checks and money orders
    B. Insurance
        1. Life
        2. Property - home, auto, etc.

Unit VI - Units of Measure

- A. Common units of measure
- B. Measures of length
- C. Measures of perimeter and area
    1. Rectangle
    2. Square
    3. Parallelogram
    4. Triangle
    5. Trapezoid
    6. Circle
- D. Measures of capacity
    1. Rectangular solid
    2. Cube
    3. Cylinder
    4. Sphere
    5. Pyramid
    6. Cone

E. Measures of time

    1. 24 hour clock

    2. Latitude and longitude

F. Measures of weight

Unit VII Supplementary Units

A. Modern Mathematics

    1. Sets

        a. Vocabulary - intersection, unions, standard description of sets

    2. Numeration

        a. History of positional and non-positional systems

        b. Systems of numeration: tally, code, grouping, place value, base 10, base 7, base 2, scientific notation

    3. Properties of numbers

        a. Commutative

        b. Associative

        c. Distributive

        d. Closure

        e. Zero and One

        f. Inverse relationships

    4. Factorization and primes

        a. Unique factorization

        b. Greatest common factor

B. Geometric Constructions

    1. Use of compass, protractor, ruler

    2. Construction of angles, polygons, circles

C. Graphs

    1. Purposes

    2. Types

        a. Pictograph

        b. Line

        c. Bar

        d. Circle

    3. Reading and interpreting

    4. Construction

D. Pythogorean Theorem (No earlier than Grade 9)

    1. Squares

    2. Square roots

E. Algebra (No earlier than Grade 9)

    1. Linear equations

    2. Signed numbers

TEACHING AIDS

1. Duplicating materials - Continental Press, Inc.
2. Workbooks - The New Continental Practice Exercises in Arithmetic for Grades 5 through 8
3. Flash cards
4. Fractional disks
5. Compass, ruler, protractor
6. Abacus
7. Games, puzzles
8. A hundred board to show percentage
9. Geometric forms - surface and solid
10. Equivalents chart
11. Graph chart
12. Slate globe
13. Manipulative aid for determining π (pi)
14. Device to demonstrate the Theorem of Pythagoras
15. Digital computer
16. Films
17. Filmstrips

References Suggested for Slow Learners
on the Secondary Level

SUGGESTED TEXTS FOR GRADES 7 and 8

Title	Author	Publisher	Date
Making Sure of Arithmetic	Morton, Gray, Springstun, Schaaf and Rosskopf	Silver Burdett	1958
Everyday Arithmetic	Douglas Kenney and Lentz	Holt Co.	1957
American Arithmetic	Upton Fuller	American Book Co.	1959
Refresher Arithmetic	Stein-Brueckner	Allyn & Bacon	1961
Mathematics for Everyone	Strayer Upton	Ginn & Co.	1953
Arithmetic 8	Upton Fuller	American Book Co.	1958
Arithmetic 8	Wheat, Kaufman, Douglas	Row Peterson Co.	1959
Mathematics 2nd course	Brown-Grodey-Dward-Mayor	Prentice Hall	1960
Arithmetic We Need	Buswell, Brownell - Sauble	Ginn & Co.	1958
Arithmetic in My World	Stokes - Adams - Whitely	Allyn & Bacon	1958
Arithmetic in Life Book 2	Fohr, Schult	D.C. Heath & Co.	1956
The New Thinking With Numbers	Brueckner - Grossnickle - Morton	Winston Co.	1956
Functional Mathematics	Gager - Johnson Schuster	Scribners	1955

SUGGESTED TEXTS FOR GRADES 9-12

Title	Author	Publisher	Date
General Mathematics	Kinney-Ruble-Blythe	Holt	1960
The New Applied Mathematics	Lasley-Mudd	Prentice Hall	1958
Basic General Mathematics	Joseph Keiffer	Prentice Hall	1958
Mathematics to Use	Potter	Ginn	1959
General Mathematics	Mallory-Skene-Meserve	Singer	1960
Fundamentals of Mathematics	Stein	Allyn & Bacon	1964
Arithmetic in Life and Work	Lasley-Mudd	Prentice Hall	1958
Basic Math for High Schools	Thorderson-Anderson	Allyn & Bacon	1959
Using Mathematics	Henderson-Pilgry	McGraw Hill	1955
Mathematics in Daily Use	Hart-Schult-Irvin	D.C. Heath	1958
Everyday General Mathematics	Betz-Miller	Ginn Co.	1960
Mathematics a Modern Approach	Wilcox Yarnelle	Addison Wesley	1963
S.M.S.G. Modern Math		Yale Press	1962
Seeing Through Math		Scott Foresman	
Exploring Modern Math		Holt	
Mathematics Seven	McSwain & others	Laidlaw	1963

SCIENCE

INTRODUCTION

A revision of the seventh and eighth grade science curriculum for use with slow learners has been made by the workshop committee. Since the ninth grade science course has not as yet been completed for all students, the workshop committee has left the adaptation for slow learners to a future time.

Science courses beyond the ninth grade are elective. Some slow learners are found in these elective courses especially in Biology. No revision of the elective courses has been attempted but some suggestions for the teaching of the biological sciences to slow learners are included.

A CURRICULUM GUIDE IN JUNIOR HIGH SCHOOL

SCIENCE

DEVISED FOR THE SLOW LEARNING STUDENT

I. Preface

A. To achieve any degree of success in instructing the pupil considered to be a slow learner, the teacher must recognize that these pupils can and will learn if .....

1. Motivated to see a need or purpose
2. Inspired by sympathetic treatment
3. Allowed to taste success

B. The skillful teacher must recognize the pupil's future impact on his and our society.

1. Early recognition as a slow learner is of primary importance.
   a. To bring to him at his limited level the essentials of science for his needs.
   b. To keep in mind that he is potentially a drop-out who needs sympathetic motivation if he is not to become a terminal student.

C. As a means of overcoming his dislike for all labors academic the skillful teacher will bring to him experiences not exercises, pleasures not problems, rewards not reprimands, and acceptance not avoidance.

II. Basic Premises of Motivation to be Used with the Slow Learner

A. The study of science can be of tremendous value to you

1. Helping you to understand and meet the earthly phenomena about you
2. Enabling you to earn a living more easily
3. Leading a healthier life
4. Living more comfortably in a better home
5. Understanding the effect of modern advancements in transportation, communication, space exploration and medicines to your future.

B. An understanding of the Scientific Method

1. The method we shall follow to learn the most about science

   a. First we gather all the facts we already know and might use to solve a problem facing us.

   b. Then we try to conclude what the different results might be, that is try to enumerate all the potential conclusions.

   c. Now we experiment, testing the possible conclusions and arriving at the correct conclusion. Then we try to apply this knowledge to new situations

GRADE 7

Unit I - Astronomy

I. Groundwork

   A. Definition - down to earth orientation on the Slow Learners plane of comprehension.

   B. Purpose: To learn about our earth and its neighbors

   C. Motivating questions:

      1. Why do we have night and day?

      2. What determines the length of our year?

      3. Why do we have seasons?

      4. What causes eclipses?

      5. Does the moon actually change its shape?

      6. What heavenly bodies make up the solar system?

      7. What is a shooting star?

      8. Is there life on other planets?

   D. Vocabulary

      1. Astronomy, astronomer, orbit, planet, satellite, illuminated, luminous, axis, revolve, rotate, eclipse, solar, lunar

II. Topical presentation

   A. The Solar System - describe its existence dependent on a balance between two forces (centrifugal and centipetal)

      1. Experience: Each pupil to have a string and weight to spin about; observing forces in effect

         a. The sun as center of the Solar System (the pupil holding the string)

         b. The planets (the object at the end of the string)

- (1) Mercury - the smallest
- (2) Venus - most like the earth
- (3) Earth - size, diameter and circumference
- (4) Mars - the red planet
- (5) Jupiter - the largest
- (6) Saturn - planet with rings
- (7) Uranus - 1782 million miles from sun
- (8) Neptune - 164 yrs. to revolve around sun
- (9) Pluto - the most distant

2. Moon
   - a. Definition - a body that revolves around a planet. Earth has 1 moon, others have none (Mercury, Venus) 2, 5, 9, 12 moons
   - b. Earths nearest neighbor
     - (1) 240,000 miles away, 2000 mi. Dia.
   - c. Effects on the earth - Tides
   - d. Eclipses: - Solar, Lunar
     - (1) Experience - demonstrate why moon seems to change shape. Flashlight, ball, darkened room. Holding ball at arms length above head facing light slowly turn right to left observing how much is lighted and how it changed as you turned.
     - (2) Experience - Using Tripensee planetarium illustrate eclipse phenomena.
3. A closer look at the earth
   - a. Rotation of the earth
     - (1) Day and night
     - (2) Latitude and Longitude

b. Revolution of the earth

(1) Seasons

(2) Shape, size, composition, tilted axis $23\frac{1}{2}^{\circ}$

c. Experience: Discovering the World of Science Van Nostrand, 1962, pgs. 84, 85. Excellent demonstrations. What causes day and night? In what direction is earth rotating? To the earth tilted.

4. Man in Space

a. What keeps artificial satellites up?

b. Rocket principles - Space exploration Experiences - Balloon, sky rocket jet planes, fanjets, Cape Kennedy - its purpose, astronauts and any other related topics to stimulate guided, enthusiastic purposeful class acitvity

c. Problems of space travel - physical and biological

d. Uses of satellites

(1) Gathering weather data, communication, photography, investigation of unsolved mysteries of space.

5. The Milky Way Galaxy

a. Galaxy - a large group of stars moving and existing in space as a unit

b. Apparent size, shape, number of stars, motions

c. Considerations of stars, - simple factual data of an enrichment nature only

6. Methods of observing stars and gathering knowledge

a. Classroom demonstration of telescopes

b. Field trip

Unit II - Atmosphere

I. Ground work - orientation

  A. Definition - The envelope of gases surrounding the earth to an indefinite extent. Explain in detail.

    1. A shield from harmful radiation from the sun, meteors, meteorites; providing water over much of the globe; furnishing oxygen for all living things

  B. Purpose - To acquaint the Slow Learning student with the basic factors which he must know to survive and to exist comfortably in an ever changing world. Depletion of water resources; contamination of his breathing supply.

  C. Motivating Questions

    1. How does air pressure enable you to drink through a straw?

    2. Why can jet planes fly higher than propeller driven planes?

    3. What lifts an airplane into the air?

    4. What pushes dirt into a vacuum cleaner?

    5. Does air weigh anything?

    6. What causes storms?

  D. Vocabulary

    1. Stratosphere, ionosphere, altitude, barometer, vacuum, siphon, diaphragm, rusting, oxidation, mixture, temperature, thermometer, humidity

II. Topical presentation and experimentation

  A. The nature of the atmosphere

    1. 4 layers; brief description by name

    2. Characteristics of atmosphere

      a. Experience - Proving air occupies space and has weight submerging inverted glass tumbler with dry cloth stuffed within. Cloth doesn't get wet as air keeps water out of glass.
      Weigh basketball full of air, then when empty

b. **Experience:** proving air exerts pressure. Heat tin can containing small amount of water. As steam occurs, remove from heat, tightly cap, and observe its collapse.

3. Air may be compressed

a. Nature of air pressure

(1) Practical occurence in our environment as tires, auto lifts, altimeters or planes; building of tunnels under rivers, the caisson; simple jet propulsion; artificial resuscitation. Fountain pen operation. Vacuum cleaner. Air brakes on a train or truck

(2) Measuring atmospheric pressure
Experience: Construct simple barometer (mercury) using a Torricelli tube

(3) Winds and their origin and causes
Hurricane, typhoon, cyclone, tornado, trade winds, Conclusion: "air is motion"

4. Air - a mixture of gases

a. Meaning - Illustrate by stirring together salt, sand, sugar, etc. comparable to the atmosphere composition.

b. Difference in composition at various heights

c. Components: O_2, N_2, CO_2, H_2O vapor, rare gases

(1) Approximate relative amounts of each

d. Oxygen

(1) Importance to man and other forms of life
(2) Burning vs. rusting processes
Experiences: Ignite object in a jar. Cover jar. Observe and explain why fire goes out. Place iron object in water. Allow to stand. Collect rusted objects. Exposed objects which don't rust as obviously. Explanations

(3) Commercial use; medical use
Experience: Prepare oxygen allowing pupils to participate. Identification tests.

e. Carbon dioxide

   (1) Properties of CO_2
   Experience: Limewater test on breath "Melt" some dry ice. Test carbonated beverages.

   (2) Discuss fire extinguishers
   Experience: Demonstrate types where available

f. Water in the atmosphere

   (1) Humidity - a measurable factor of discomfort yet of importance in industrial environments

   (2) Weather aspects; Clouds, fog, precipation
   Experience: Fog chamber experiment

g. Air pollution - definition

   (1) Brought about by industrial gases, motor exhausts, smoke, dust

   (2) You can help: support anti-pollution efforts!

h. Weather and the atmosphere

   (1) Weather prediction
   Experience: Visit to the weather bureau, Pupil log of predictions and actual observations. Use of hygrometer, thermometer, barometer

   (2) Use of radar. Warning systems. Hurricane hunters

   (3) Effects on transportation, communication, and agriculture
   Experience: Actual classroom growing of some simple plants.
   Setting up a simple weather station
   Films on history of transportation
   Films on growth of communication showing dependence on weather

Unit III - Water and Land Resources

I. Groundwork

  A. Importance to all forms of life with related effect on economic factors in the home, in food production, sanitation, and industry.

  B. Purpose: To learn those facts about water to better use and conserve our water and land resources

  C. Motivating questions

    1. Does water exist on other planets?

    2. How does water get into and out of the air about us?

    3. How can a submarine rise and dive?

    4. What happens when a substance dissolves?

    5. What enables a boat to float in water?

    6. What is meant by polluted water?

    7. How do fish breathe?

    8. What is the work of a geologist?

    9. How old is the earth?

    10. What are minerals; their occurence; their uses?

  D. Vocabulary

    1. Solvent, solute, distillation, decomposition, evaporation, condensation, density, buoyancy, photo synthesis, rotation.

II. Topical Presentation

  A. Water

    1. Physical and chemical characteristics of water

      a. Color and odor

        (1) Purification: industrial, domestic

        (2) Experience: Distillation of some impure water

      b. Hardness factor - geographic causes

        (1) Effects on soap. Water softeners. Illustrate

c. Bacterial content

    (1) Health aspects

    (2) Community responsibilities

d. Physical and chemical properties

    (1) Solvent action:
    Experience: Mix equal quantities of sugar, sand, salt, and powdered iron with water. Filter each one and observe which "dissolved." (Can be pupil performed)
    Experience: Allow to evaporate on standing a salt solution; a sugar solution; an iodine solution showing solute still to be present and reclaimable

2. Water pressure

    a. Pressure is determined by density and depth

        (1) Clarification of meaning of density
        Experience: Weigh equal volumes of water, mercury; Why does cream occur at the top of a milk bottle?

        (2) Dependence on depth
        Experience: Gallon can with plugged holes at different depths. Fill with water. Remove plugs and observe flow at various holes
        Discussion of importance: Submarine construction bathysphere exploration. Tunnel building

        (3) Existence in all directions even upward
        Experience: Float different density objects
        Steel bar vs. steel boat. Design of material leading to buoyancy idea of displacement

3. Our Water Supply

    a. Necessity for human existence

    b. Importance to agriculture

    c. A means of transportation

    d. Sources

        (1) Wells, springs, rivers, lakes, reservoirs

        (2) Production from sea water. (Guantanamo crisis in Cuba)

4. Conservation: its vital importance

    a. Population increase

    b. Detergent pollution

    c. Domestic purification in emergencies

        (1) Boiling, chemical treatment in swimming pools

    d. Commercial, community purification

        (1) Aeration, chemical treatment, filtration
        Experience: Allow some muddy water to pass through a sand laden filter
        Distill a salt solution allowing pupil participation
        Importance to food preparation

B. Land Resources

1. Our earth

    a. Layers, occurence of useable materials

        (1) Changes in crust due to earthquakes, erosion by wind and water, heating.

        (2) Elements vs. compounds

        (3) Minerals
        Experience: Examination of specimen collections as samples of coal, iron ores, bauxite, fool's gold

        (4) Rocks - how formed
        Types - igneous, sedimentary, metamorphic (as information only)

        (5) Mining of ores and metals
        Surface, underground
        Sources of uranium - importance
        Experience: Geiger counter demonstration

2. Fuels from the earth

    a. Coal - formation; by-products

    b. Oil and natural gas

3. Resources from the oceans - food and minerals

4. Farming

    a. Crop rotation

    b. Governmental assistance programs

5. Lumbering

    a. Care of forested area

    b. Use of products

    c. Importance of conservation

        (1) Forest fire damage; its tremendous economic effect

        (2) Government sponsored programs for replanting

6. Recreational aspects of the ocean, the forests, and ponds and lakes

        (1) The individual's part in respecting, expanding and conserving these natural facilities

Unit IV - Biological Resources

I. Ground work - orientation

- A. Definition of the life processes. Food-getting, digestion, respiration, getting rid of waste products, and reproduction are the basis for the continuation of life

- B. Purposes: To provide you as a student, with the necessary information to live a healthy more comfortable happier life in your environment.

- C. Motivating questions

  1. What is life?

  2. How do I grow?

  3. How do I use food?

  4. What can I do to maintain better health by understanding how my body functions?

  5. How is life propagated, that is how do living organisms increase in number?

- D. Vocabulary

  1. Cell, protoplasm, organism, ingestion, digestion, chlorophyll, nucleus, vertebrates, bacteria, photosynthesis

II. Topical presentation

- A. The nature of life

  1. Living things

     - a. An organism is a complete living thing

     - b. All living things are made up of cells
       Experience: Use of microscope to examine onion skin, human tissue, hair, and any other items of interest to group

  2. Organisms produce and consume food

     - a. Green plants are the important food producers

     - b. Photosynthesis: Explain process in simple terms; Water and carbon dioxide and energy producing sugars and oxygen

        c. Respiration takes place in all organisms
        d. Animals and non green plants are food consumers
    3. Living things reproduce
        a. Sexually
        b. Vegetative reproduction
        c. Artificial ways as budding, grafting
    4. Classification of organisms
        a. Systems of nature
            (1) Two kingdoms - plants and animals
        b. Organisms depend on their environment
        c. They need food to stay alive many depending on other organisms for their food

B. The relationship of life
    1. Organisms affect each other
        a. Living things survive best in their natural environment
        b. Density of a population is affected by food and space
        c. Animals have natural protections from their enemies
        d. Life exists under a variety of conditions. Illustrate
    2. Forms of life found on land
        a. Broad belts of similar climates around the earth; as tropical, temperate, deserts, high mountains with their similarities of animal and plant life
    3. Life found in inland waters
        a. Food relationships existing in streams, rivers, lakes, and ponds
    4. Forms of life found in oceans
        a. Organisms peculiar to the shallow portions of the sea, in warm tropical seas, in the Antartic ocean

C. The diversity of life

1. The main plant groups

    a. Bacteria - one celled plants, multiplying by cell division

    b. Fungi - group of simple plants. Molds - thread like structures

    c. Algae - one-celled plants containing chloryphyll

    d. Mosses and liverworts

    e. Ferns - true roots, stems and leaves

2. Higher plants

    a. Flowering plants, the flower and its reproductive process

    b. Seeds and their dispersion

3. Invertebrate vs. vertebrate animals

    a. Sponges, jellyfish, corals

    b. Fish, amphibians, reptiles, birds, and mammals

4. The need for conservation

    a. Life on earth is in a critical balance due to the practices of man in upsetting the balance of living things

    b. Proper management can bring about a continuous yield of forest products and essential wild life

    c. Stress the inter dependence of all living things and their environment

GRADE 8

Preface

Topic wise, it is felt that the slow learner should have an acquaintance with practically all of the basic 8 units. The amount of depth will depend on teacher judgment to a greater degree. He will exploit pupil interest with the aim of a greater understanding of those topics which are most essential to a potentially terminal student. To meet his basic needs will be of greater importance than the acquisition of any technical skill.

Therefore the standard curriculum has been used as a core while eliminating certain topics felt to be definitely above his comprehension level.

Greater emphasis must be placed on "seeing and doing" rather than lecturing. Much appropriate visual presentation through experimentation is available to the teacher of the slow learner in the recently adopted seventh and eighth texts, Science I, Blanc, Fischler, and Gardiner, Holt-Rinehart-Winston, and Science 2 by the same authors, both 1963 editions.

Supplementary experiences of an appropriate nature may also be easily found in Discovering the World of Science, Oburn, Heiss, Montgomery, and Lape, D. Van Nostrand Co., 1963.

Unit I - Forces and Motion

I. The Metric System

A. Applications

1. Used in most countries of world except United States and Great Britain

2. Used universally by scientists

3. Comparable to our money system

B. Basic units of system

1. Meter - length

2. Liter - volume

3. Gram - mass

C. Metric - English equivalents

1. 1 meter = 39.37 inches

2. 1 mile = 1.6 kilometers

II. Force

A. Definition

B. Kinds

1. Friction: sliding, rolling, destructive, lubricants, ball and roller bearings

2. Gravity: weight, mass, Law of Universal Gravitation, work of Newton

III. Motion

A. Definition

B. Properties

1. Acceleration

2. Velocity

3. Speed

C. Kinds of motion

1. Gravity and the motion of falling bodies - projectile motion and trajectories

2. Circular motion

3. Rotary motion - gyroscope and gyrocompass

Unit II - Energy and Its Transformation

I. Introduction - Questions and Speculations About Energy

- A. How does the sun's heat reach us?
- B. What is necessary for starting a fire?
- C. How does ice melt?
- D. Can energy be destroyed?
- E. What is a calorie?
- F. Do we know what light is?
- G. Why is the sky blue?

II. Energy

- A. Kinds of energy
  - 1. Potential
  - 2. Kinetic
- B. Forms of energy
  - 1. Radiant (electromagnetic radiation)
  - 2. Heat
  - 3. Mechanical
  - 4. Chemical
  - 5. Electrical
  - 6. Nuclear
  - 7. Sound
- C. Sources of energy
  - 1. Solar radiation
  - 2. Fuels - chemicals
  - 3. Water (gravitational)
  - 4. Wind
  - 5. Nuclear reactions: fission and fusion

D. The transformation and conservation of energy

   1. Devices that convert energy from one form to another Examples: generator of automobile, solar cell, photoelectric cell, microphone, loudspeaker, thermocouple, etc.

III. Heat Energy

   A. Sources of heat

      1. Chemical action
      2. Friction
      3. Hammering
      4. Compression
      5. Electricity

   B. Kinetic-Molecular Theory

      1. Heat causes expansion
      2. Heat transmission
         a. Conduction
         b. Convection
         c. Radiation
      3. Measurement of heat - Centigrade, Fahrenheit; calories (large and small), B.T.U.

   C. Fire triangle

      1. Fuel - oxygen - kindling temperature
      2. Extinguishing fires

IV. Radiant Energy

   A. Scope and varieties of radiant energy

   B. Sources of light energy

      1. Incandescent bodies
      2. Luminescence, fluorescence, phosphorescence

- C. Measurement of illumination
    - 1. Standard candle
- D. Reflection and refraction of light
    - 1. Law of reflection and refraction
    - 2. Refraction by the atmosphere
        - a. The sun's shape
        - b. Twinkling of the stars
        - c. Mirages
- E. Refracting lenses and instruments
    - 1. Concave
    - 2. Convex
    - 3. Microscope
    - 4. Telescope
- F. Color
    - 1. Composition of white light
    - 2. Dispersion

V. Sound

- A. Sound is a form of mechanical energy
- B. Sound is produced by vibrating matter
- C. Sound travels as waves and requires some material medium
- D. The properties of sound
    - 1. Intensity or amplitude and loudness
    - 2. Frequency and pitch
    - 3. Timbre or quality
- E. Use tuning forks, resonance box, and musical instruments to clarify properties of sound

Unit III - Man and Machines

I. Introduction[1] - Questions for Speculation

   A. What is a machine?

   B. How does an airplane fly?

   C. What is the jet principle?

   D. How does a navigator plot his course?

   E. What effect did the internal combustion engine have on our society?

II. Concepts of distance, force and work

   A. Distance must be in same direction as force applied

   B. Force

   C. Work ($W = f \times d$)

III. Machines

   A. Review: lever, pulley, wheel and axle, acres, inclined plane, and wedge

   B. Efficiency and friction

   C. Mechanical advantage

   D. Power

      1. $P = \frac{f \times d}{t}$

      2. Horsepower and watt

IV. Heat Engines

   A. Combustion engines

      1. Gasoline engine

      2. Diesel engine

      3. Gas turbine

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[1] The teacher should realize that elementary pupils have received an explanation of simple machines in a qualitative way. In the junior high the teacher should extend this knowledge to a quantitative understanding of the concepts involved, but in the case of slow learners emphasis on reteaching in a qualitative way is of greater importance. The attainment of quantitative skill is not likely to be reached to any degree with slow learners.

- B. Jet propulsion
  - 1. Turbojet combinations
  - 2. Conventional jets
  - 3. Rocket motors

V. Aerodynamics

- A. Forces acting on an object in flight
  - 1. Thrust
  - 2. Drag
  - 3. Gravity
  - 4. Bernoulli's principal
  - 5. Design and shape of airplanes

VI. Special Problems of Flight

- A. Manned vs. unmanned vehicles
- B. Guidance systems
- C. Navigational aids
  - 1. Radar (Radio detecting and ranging)
  - 2. Loran (Long range navigation)
  - 3. Lanac (Laminar air navigation and anticollision)

Unit IV - Man's Body and How It Works

I. Units of Structure
  A. Simple cells
    1. Review of cell concepts - emphasis on animal cell
  B. Specialized cells
    1. Tissue
    2. Organs
    3. Systems

II. Body Framework
  A. Skeletal system
    1. Functions of the skeleton
  B. Muscular system
    1. Relations of muscles to skeletal system

III. Foods and Digestion
  A. Foods
    1. Five main classes of food needed by the body - proteins, carbohydrates, fats, minerals, vitamins
    2. Proteins, carbohydrates, fats
      a. Composition
      b. Test to determine their presence
      c. Sources
      d. Use of each type by body cells
      e. Calorie and caloric requirements
    3. Minerals
      a. Bodily requirements
      b. Sources

- 4. Vitamins
    - a. Importance in diet
    - b. Function and sources of Vitamins A, B, C, D, K
    - c. Deficiency diseases and conditions
- 5. The well balanced diet
- 6. The body's need for water

B. Digestion

- 1. What digestion means
- 2. Digestive system
    - a. Organs
    - b. Glands

IV. Circulation

A. Function (general)

B. Heart

- 1. General structures
    - a. Chambers
    - b. Valves
- 2. Functions of each structure
- 3. Cause of heart beat
- 4. Diseases of the heart
    - a. Heart-lung machines
    - b. Surgical techniques

C. Blood

- 1. Constituents and functions
    - a. Plasma
    - b. Red blood corpuscles
        - (1) Structure
        - (2) Where made and destroyed
    - c. White blood corpuscles

        2. Diseases of the blood
            a. Anemia
            b. Leukemia
            c. Hemophilia
        3. Four main blood types (A, B, AB, O)
    D. Blood vessels, functions, characteristics
        1. Arteries - pulse
        2. Veins
        3. Capillaries
    E. Blood circulation
        1. Pulmonary
        2. Systemic
V. Respiration
    A. Difference between breathing and respiration
    B. Breathing
        1. Organs and structures involved
        2. Mechanical factors
        3. Exchange of gases
    C. Transportation of oxygen and carbon dioxide
VI. Excretion
    A. Necessity of waste removal
        1. Function of blood
        2. Function of lungs
    B. The skin
        1. Removal of excess heat
        2. Water loss - salt loss

VII. Coordination

- A. Nervous system
  - 1. The nerve cell
    - a. Structure
    - b. Nature
  - 2. Brain
    - a. Nature of brain tissue
      - (1) White matter
      - (2) Grey matter
  - 3. Spinal cord and nerves
    - a. Nerves - two main types
    - b. Functions
    - c. Reflex actions
  - 4. Sense organs
    - a. How we see
      - (1) Parts of the eye
      - (2) Functions of the eye
      - (3) Correction of eye defects
    - b. How we hear
      - (1) Parts of the ear
      - (2) Hearing
      - (3) Balance
    - c. Taste and smell
      - (1) End organs of taste and smell
      - (2) Relations of these senses

THE SLOW LEARNER AND THE BIOLOGICAL SCIENCES

The following are problems of the Slow Learner as they affect him in the Biological Sciences.

1. Poor language skills, particularly word recognition, reading and spelling. All science has a specific language which is unique, but must be learned.

2. The slow learner is in the course without realistic purpose. He takes it because he needs a science, or because it is a part of the prescribed course, not because he is interested. Or he will pick out the parts he prefers (i.e. anatomy) and neglects the rest (i.e. Botany).

Since heterogeneous grouping is the usual condition encountered in these classes, the following are suggested as a means of attaining a greater measure of success with the slow learner.

1. Require faithful and consistant participation in written homework assignments, accumulation and organization of classroom notes (the text is inadequate, notes must be supplemented) reports and drawings from laboratory exercises etc. These should be checked for organization and content before each marking period and graded.

2. Opportunity to improve on a low grade on tests by requiring a complete outline of the material covered by the test, and handed in within a reasonable time. Midyear and final examinations are excepted. Marks are raised one grade upon completion of this requirement. Marks are not raised beyond the C grade.

3. Designate a specific department night, or any convenient time during or after school for extra help. This may or may not be mandatory.

4. Opportunity should be offered for extra credit for a student to do extra reading and reporting in the subject area being covered, or having been covered in class. Copying articles from magazines, encyclopedias and the like should be unacceptable. The interested student should be made acquainted with the library facilities that provide authoritive text material. The report should be in his own words, and from more than one source.

5. As much opportunity as possible to participate in laboratory work should be provided. Not all subject material in the Biological sciences lends itself to laboratory reinforcement. What does should be exploited to the fullest, and further pursuit of the subject through outside reading encouraged. The slow learner can contribute by setting up, cleaning up, and specimen collecting, as well as doing the required exercises.

6. It is suggested that illustrations used to elaborate on or explain principles be "homely", geared to the level of the learner, and in as few technical terms as possible.

Should the picture change so that the slow learners be grouped homogeneously it is recommended that a separate course in Biology be offered that carries graduation credit but not college credit. This course would have practical application of Biological principle, omitting when possible the technical aspects of the subject. The areas of concentration would be physical and mental health, hygiene, physiology and anatomy, nutrition, growth, etc.

Attention could be focused on study and control of organisms, the interrelations of living things (Ecology) and conservation of natural resources. These forms are recommended in the science manpower project monograph, "Policies for Science Education", Frederick L. Fitzpatrick, Editor; Bureau of Publications, Teachers College, Columbia University, 1960.

The BSCS series is geared to two criteria, area of concentration and degree of difficulty, with overlapping in vital informational areas. The simpler green version with its emphasis on laboratory technique may fill some of the Slow Learner needs.

NON-ACADEMIC COURSES FOR THE SLOW LEARNER

The existing programs in Industrial Arts and Homemaking in the Warwick schools make allowances for individual differences among pupils.

The following recommendations would better adapt the existing curriculums to the specific needs, interests, and abilities of the slow learner:

1. Class sizes should be limited to not more than twelve pupils which would allow for closer supervision and safer use of equipment and machines.

2. Pupils should be grouped homogeneously according to subject within given curriculum areas. Because specific abilities will vary, this would provide greater latitude for meeting individual needs.

3. Flexibility of transfer from one level of learning to another should be established. A child may change status as a result of experiences and progress in intellectual functioning.

4. A realistic approach to scheduling would permit slow learners more opportunity to elect or take part in non-academic courses. Most comprehensive high schools have six period days which allow greater breadth for election within the structure of the school day. Cultural subjects, such as art and music, enrich the esthetic values of the pupil encouraging greater appreciation for the refinements of life.

5. All slow learners, boys and girls, should have some experience in both Industrial Arts and Homemaking to help them become progressively literate about the selection and use of goods and services associated with daily living. More women are entering industry, sales, and services; more men are contributing to home activities.

6. All theory related materials and its evaluation should be geared to the ability of the pupil. Theory should be correlated directly and immediately to a practical application of its use.

7. There should be relatively less emphasis and dependence upon the reading and study of highly technical materials. Greater emphasis should be placed upon the development of skills for which these pupils have most aptitude and the ones in which they are most likely to be employable.

8. A greater proportion of class time should be devoted to a larger number of simple individual and group projects which can be completed in a short period of time thereby enabling the pupil to feel the stimulus that results from successful completion of a task.

9. Adequate time should be allowed for each phase of a lesson. Experiences and activities should be developed slowly, simply and in sequential order over an extended period of time. Provision should be made to help the slow learner remember what to do how and when.

10. More emphasis should be placed upon pupil responsibility for the care of tools, equipment, and supplies and for orderly maintenance and organization of work areas. Relatively more emphasis should be placed upon safety measures and the development of attitudes of safety at home and at work.

Appendix I

School Numbering Code

Code No:	Name of School:
12	Apponaug
8	Bayside
7	Buttonwoods
31	Cedar Hill
16	Central
2	Conimicut
13	Cowesett
25	Francis
22	Greene
14	Greenwood
10	Hillsgrove
24	Holden
28	Holliman
11	Lakewood
9	Lincoln Park
23	Lippitt
3	Natick
21	Nausauket
1	Norwood
4	Oakland Beach
32	Park
5	Pontiac
17	Potowomut
26	Rhodes
27	Sherman
6	Spring Green
33	Warwick Neck
29	Wickes
19	Wyman
18	Aldrich
20	Gorton
15	Lockwood
34	Pilgrim High
30	Warwick High

Appendix II

SLOW LEARNER SURVEY

To the teacher:

1. List all students who have an I.Q. of 92 or below. Use results of individual I.Q. tests if available, group test scores otherwise. Give initials of tests used as S.B. (Stanford Binet), C.T.M.M. (California Test of Mental Maturity), etc.

   N.B. This is a first screening only. Some of these students may eventually be placed in special classes other than those for slow learners or be retained in regular classes.

2. List percentile scores in reporting other test results requested for these students. Scores at or below the 35th percentile will be considered significant in determining status of pupils.

3. Report grade level of reading ability. Use score of objective test if available, otherwise use teacher's subjective observation. Indicate sub-level also, if available, such as 2^2, etc.

4. Indicate teacher or counselor judgment as to pupils' classroom performance (compared to that of "normal" children):

   A - Superior
   B - Above average
   C - Average
   D - Below average
   E - Inferior

5. Indicate in "Other Data" column:

   a. Whether pupil functions well in regular group
   b. Whether any physical or emotional problems are present
   c. Whether special placement other than in "slow learner" class seems advisable
   d. Similar information that will help in placement.

6. Return list to your principal as soon as possible.

Appendix III

SLOW LEARNER SURVEY

RADE I Teacher:______________________________ School:__________________________

me of Pupil	Sex	I.Q.	I.T.B.S.		Reading Level	Teacher Judgment	Other Data
			Read.	Math			

Appendix IV

SLOW LEARNER SURVEY

rade II Teacher:__________________________ School:__________________________

ame of Pupil	Sex	I.Q.	Reading Readiness Test	Met. Achievement		Teacher Judgment	Other Data
				Read.	Math		

Appendix V

SLOW LEARNER SURVEY

RADES III, IV, V, VI Teacher:________________________ School:_________________

ne of upil	Sex	I.Q.	I.T.B.S.		Reading Level	Teacher Judgment	Other Data
			Read.	Math			

Appendix VI

SLOW LEARNER SURVEY

DES VII and VIII **Teacher:**____________________________ **School:**____________________

e of pil	Sex	I.Q.	I.Q.	I.Q.	I.T.B.S.		Counselor's Judgment	Teacher Judgment		Other Data
					Reading	Math		Eng.	Math.	

Appendix VII

SLOW LEARNER SURVEY

S IX, X, XI, XII Teacher:____________________ School:____________________

of l	Sex	I.Q.	I.Q.	I.Q.	Co-op Eng.	Counselor Judgment	Teacher Judgment		Other Data
							English	Math	

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